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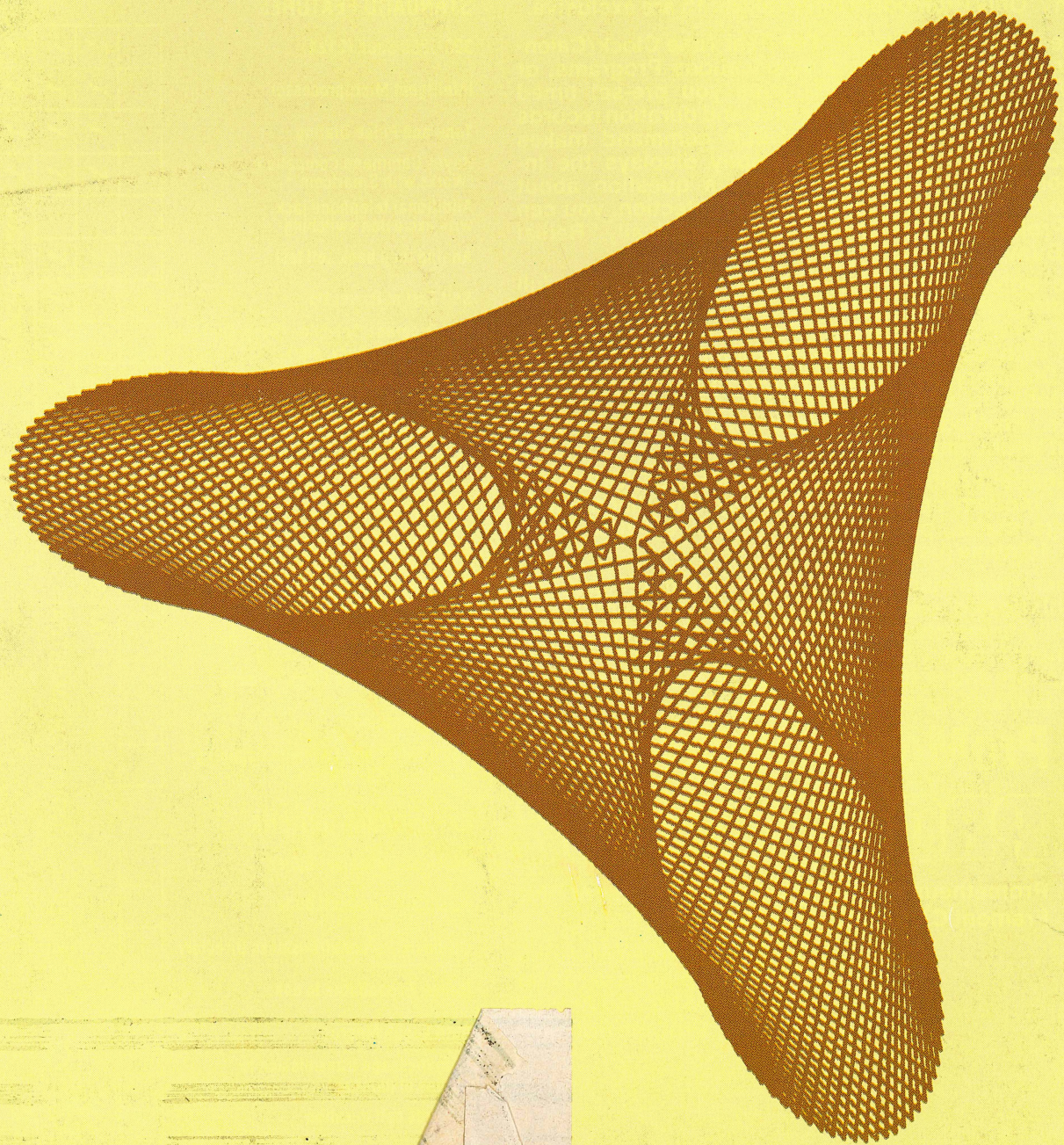

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212A Modem Comparison Chart *

STANDARD FEATURES	PRO	HAYES STACK	NOVATION SMARTCAT+	ANCHOR 1200°	US ROBOTICS PASSWORD
300/1200 Baud (212A)	✓	✓	✓	✓	✓
Intelligent Microprocessor	✓	✓	✓	✓	✓
Tone and Pulse Dialing	✓	✓	✓	✓	✓
Hayes Command Compatible (Works with Smartcom™)	✓	✓	✓	✓	
Additional telephone jack with exclusion switching	✓				
Analog loop back self test	✓	✓	✓		
Self Test at Power Up	✓		✓		
Call Progress Detection (Busy, Dial Tones, Trunk Busy, etc.)	✓		✓		
Speaker and External Volume Control	✓	✓	✓		
Full Complement of Status Lights	✓	✓			
8 Switch Selectable power-up defaults	✓	✓			
Adaptive Dialing	✓	✓	✓		
Auto Redial on Busy	✓	✓	✓		
Ergonomically designed easy to read front display panel	✓				
Internal Stand-Alone Power Supply	✓				
Built in Real Time Clock/Calendar	✓				
Help Command	✓				
300 baud connect while maintaining 1200 baud RS-232 link	✓				
EXPANDABLE OPTIONS					
Automatic Receiver Buffer	✓				
Automatic Transmit Buffer	✓				
On-board Personal/Business Directory	✓				
Buffer, Expandable to 64K	✓				
Auto Logon Macros	✓				
Auto message transmission to groups of numbers	✓				
Records call duration	✓				
12-character Alphanumeric Display	✓				

*Comparison made by Prometheus on the basis of the best information available to Prometheus at time of printing.

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Correction: In the July issue, the suggested retail price for the Acorn Publishing Co., "Logo Professor" should have read $149. We apologize for any difficulties this may have presented to dealers and users.

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* Features the Epson function keys: HELP, UNDO, STORE, RETRIEVE, PRINT, INDEX, and STOP.
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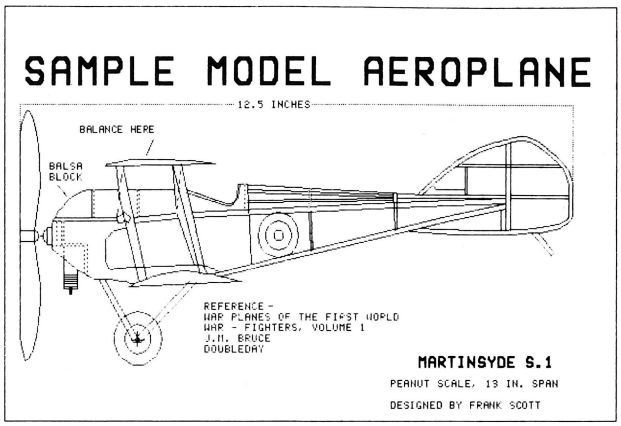

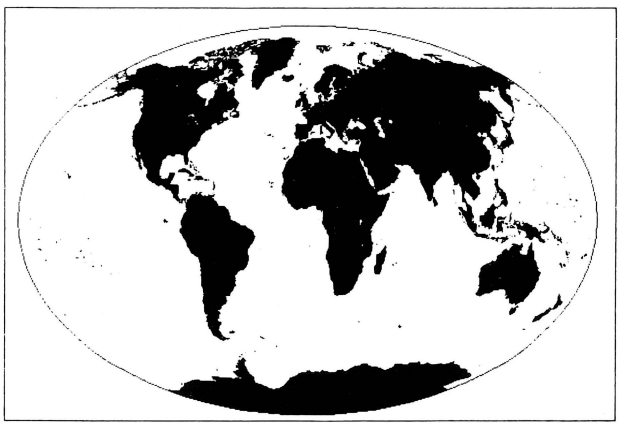

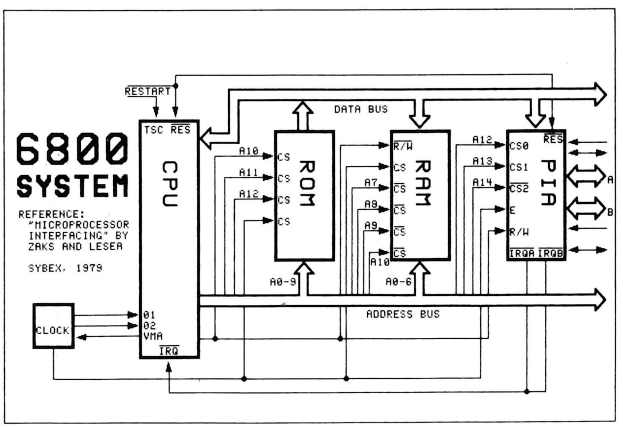

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From Your Editor...

Editorial — *Our congratulations to subscriber Edwin Moses who won the Olympic Gold Medal in the 400 Meter Hurdles. In an interview on television he and his wife Mirella, talked about how they use their QX-10 to follow and graph his workouts. He programs his diets and training routines on his Epson. Watching him fly over the hurdles was certainly breathtaking.*

A note regarding the Quick Action Cards included with the issue. The purpose of these is to assist you in getting additional information from the product manufacturers, as well as letting them know where you heard about them. We have already received many pleased responses from various companies expressing their appreciation for the numbers of users sending in the cards to them. Thanks, and keep up the good work. One additional comment here is that for additional information on products from Epson America, Inc. you should contact your nearest Epson dealer. If you need to locate a dealer, call the Epson America Hotline number 1-800-421-4526. They will direct you to the nearest dealers in your area.

Moving into this next stage of growth for our magazine we would like to ask for your suggestions regarding content, departments, articles, etc. We are continually looking to improve our usefulness to you.

One of the content areas I am trying to watch is to keep a varied and well-rounded variety of articles in each issue. Something for everyone. If there are particular topic areas of interest to you, or you feel information is overwhelmingly too technical, or too simple let me know. Your feedback is important. There is not enough time to respond to all your letters individually, but your input is very important. It would be helpful to receive more articles on getting the most out of the various printers users have.

The new Epson portable computer, the PX-8 is being well received around the world, see the reviews in the August issue of ***Portable Computer****, and the September issue of* ***Computers & Electronics****. Looking foward to this fall's products is exciting. We can expect many new software and computer products. Happy Computing till next month.*

▲ ▲ ▲

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DEALERS INQUIRES INVITED

NEWS NOTES

This month's newsnotes will be a compilation of user tips about various programs and products, as well as some corrections to the past issue.

1.19 Valdocs Release: Chuck Champlin of Epson America, Inc. sent out a notice to user groups stating:

"The purpose of the 1.19 release is to provide a final version of Valdocs in the 1.0 series which corrects the major defects known to exist in previous releases. Version 1.19 has been put through a relatively extensive alpha and beta testing process to ensure there will be no need for a future release to fix bugs in the product. Valdocs 1.19 is an official product release from Epson Computer Products Division; 1.19 completes the 1.0 series of Valdocs integrated software.

What won't 1.19 do? Version 1.19 will not increase the speed of the editor. The speed is not considered a bug. 1.19 will not alter this feature. Version 1.19 will not provide you with any new modules, features or enhancements to previous releases.

Are there any bugs in 1.19? There are minor bugs documented in this version. You will receive documentation detailing them when you receive your upgraded diskette. How do I get Valdocs 1.19? Take your 1.18 Valdocs System Diskette to your Epson dealer. The dealer will overwrite Valdocs version 1.19 to your system diskette. Your dealer has a 1.19 master diskette and a master 'checker' diskette and documentation to perform the overwrite procedure.

Will 1.19 cost me anything? Version 1.19 is a free upgrade QX-10 owners will receive from Epson. The software upgrade is free. Some dealers may charge a small service fee to overwrite your diskette. If you feel such a fee is exorbitant, call me and I will take care of it.

What about Valdocs 2.0? Don't I get that as an upgrade, too? The Valdocs 2 series is a new and different product from the current Valdocs 1.0 series. Any fee for current users to upgrade to the Valdocs 2 series will be reasonable. Program details will be announced when the product is available.

If I have difficulties, will Epson answer my questions on 1.19? Epson supports Epson products. your dealer expects you to call if you have any problems. We suggest you read your documentation first before calling your dealer for help. If the dealer cannot assist you, ask him to contact the distributor on your behalf or give you the number to call.

It should be pointed out that Epson can best support those end users who have obtained their version of 1.19 from the dealer! The checker diskette which accompanies the master 'checks' the integrity of your copy, saving you the frustration of going home with a problem diskette. It is Epson's intention to distribute Valdocs 1.19 as quickly and as widely as possible, as soon as product reaches the dealer!

Will 1.9 be packaged with new QX-10's? Yes. Your dealer will either provide you with documentation to make any changes yourself or will have 1.19 pre-installed on the master Valdocs system diskette which comes with your QX-10!"

Some problems have been reported regarding 'crashing indexes', 'margin setting errors', 'reversed video screen'. Please check to make sure you received your disk from the dealer who 'checked' it. You may have received a copy from a friend who received a copy from a friend... who had a test copy. If this is not the case and you can document the problem, be sure to put your problem in writing and send it to your dealer and or to Chuck Champlin Epson America, Inc. A copy to us would be appreciated so we can keep each other informed.

We will outline some of the important changes to your manual for 1.19, and please take note of a few **warnings** which are indicated in bold type.

1. **1.19 Insert Pages** — If you bought your QX-10 before 1.18 was released, you may also have received some corrections for the 1.18 upgrade. If you did not insert those changes, some of the 1.19 updates may not make sense. Also, as you attempt to input the indicated insert pages in their indicated page and paragraph place you may find that they have nothing to do with the text at that point, or that the page or appendix doesn't exist. Check your copyright date on the first page of your Valdocs User's Guide. If it says 1983, and has the No. QD-002, many of the insert pages will not fit where indicated. Manuals copyright 1984, No. QD-002A will be all set. Because of this, we are going to list the major changes with 1.19:
1. Screen Blanking — as you will have noticed, your screen blanks out after about 20 minutes if you have not been interacting with your QX. This is a feature to keep images from being burned into your screen. This is now optional through the SETUP program under Terminal Type.
2. **Warning** — Don't use UNDO when you're in the MAIL program's Person-to-Person mode and you are receiving data. Pressing UNDO will corrupt the rest of the data unless it includes a carriage return which clears UNDO.
3. Two Print Menus — To see the second print menu press SHIFT down-arrow once you are at the first one. There are a few changes wording changes and additions to the menus:
   a. New pg.# for first page — This lets you specify what page number begins on the first page of your document.
   b. Don't print before [New] pg# — This will allow you to choose what page of your document you want the printing to begin with.
   c. Don't print after [NEW] pg#. — will stop the printing at the selected page number.
   d. Single Sheet feed option will disable the 'paper out' beeper on your printer.
   e. LQ1500 — you will need to use SETUP and select MX100, and set the printer dipswitches so that the buffer is OFF. Graphics characters will not work, and Valdocs does not work with the LQ-1500 selection yet, single or double-bin cut sheet feeder.
   f. FX-80 and 100 graphics characters, bold italics and italics — Turn the printer on before booting your Valdocs system, and it will download the

graphics characters. You DO NOT NEED DIPSWITCH 8 down with 1.19 to do this. Your FX dipswitches should be: Dipswitch Panel-1: 1,2,3,4,5 off, and 6,7,8 on. Dipswitch Panel-2: 1,2 on, 3,4 off. Note — If you are in Quick display mode it will not show them on screen, nor print them out.

g. FX 1/9 inch line spacing — This is a new feature, on the FX it allows the graphics to link characters vertically. Change the page length from 66 to 99 lines to fill an 11-inch letter size page (selected via CTRL P <S>). The normal spacing is 1/6 inch.
h. There is a selection for the ComRiter CR-II cut sheet feeder on the second print menu.
i. Printer buffer — If your printer buffer can not be turned off input 40cps for the CR-1 and CR-II select 10 - 12 cps if you want the STOP key to work, otherwise use 30 - 60 cps.

4. **Warning** Change the date — If you change the date backward to a date earlier than some of your files which are already stored on the disk, the files will be hidden from the system and not accessible.
5. Mail — You can receive Dow Jones with Valdocs Mail. Dow Jones sends a string that locks out your keyboard at each incoming prompt. Press UNDO and RETURN to re-activate your keyboard before answering.

RSIBASIC NOTES

To make a copy of your RSIBASIC disk put it in the left drive, press reset, when you see Basic is loaded, type BYE, then type in CPYD do a return, and follow directions for copying a disk.

You must put the END statement at the end of programs.

Correction — In the August issue, "The RSI BASIC: the Power Basic" article, the first graphic command mentioned, DRAW, should have read as follows: BDRAW — Controls the 7220 graphics chip D-Op codes and relays the parameters that you desire, such as size of user rectangle, radius, etc.

RND function — The RND function needs some further clarification. This is how to use the seed value:

1. A seed less than zero will initialize the pseudo-random number sequence. Each time the random number generator is initialized with the same seed number it will produce the same random number sequence.
2. A seed of zero will cause RND to return to the previous random number.
3. No seed, or a seed greater than zero will cause RND to return the next random number in the sequence.

Run this example program and note that every time the same seed is used, the same random number sequence is returned. (Only positive numbers should be entered as a seed value in the test program.) If different sequences are desired for the same seed value, use the RANDOMIZE statement.

```
100   PRINT: PRINT: INPUT "SEED VALUE: ", A
110   B=RND(-A)
120   FOR J=1 TO 10: PRINT RND
125   NEXT J
130   GOTO 100
```

Unix and QXModem — Al Braley finds that QXModem can access UNIX fine under CP/M, but not under Valdocs or TPM.

EpsonNet RBBS changes: The Indianapolis RBBS/RTPM hours should be changed to: 9pm-5am Sun-Fri, and 9pm-2pm Sun. We are pleased to announce a newcomer to the system: Steve Stecklow and

Con't on page 31

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With the QX-10, use the MX with Graftrax or the FX or RX printers.

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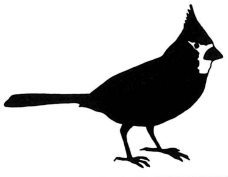

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Q - How do I get to see the graphics on the EpsonNet RBBS when I call in using QXMDM3?

A - *Type SET G at the command line, then dial away. Vaughn Barnhart*

Q - Is there a way to download only one file from a library?

A - *Yes. If you type in XMODEM and a return you will see the acceptable commands. You do XMODEM L Libraryname.LBR filename.EXT and a return. This will allow you to download a given file from the specified library.*

Q - Does anyone out there know the Hex code modifications necessary to make modem program M740QX10 boot up at 1200? I'm using a RIXON R212A 1200bps Intelligent modem. Jon Austin

A - *Im sure there is but there would have to have some special overlay for your Rixon as the origional source code or object code or some familiarity with Assembly language programming.*

Q - I want to upload data to the CompuServe network storage from my QX-10 and download it to a TRS-80. How, and what do I need to do this?

A - *You can upload to CompuServe using ValMail or any other Epson compatible communications program. Then The TRS-80 requires the "Videotex Plus for the Model I" package, which requires a disk drive to upload or download files. (Exerpted from Personal Computing Mag.)*

Q - As the only computer user in Kampuchea (Cambodia) I need all the outside advice and help I can get! My initial reason for getting the QX-10 with VALDOCS was to have greater freedom in generating unusual fonts (Khmer, Lao, Vietnamese, Thai, Ect.). The requirements are: 130 characters up to 32 pixels high, backspace / overlaying, and proportional spacing. So far it has been a disappointment. The hardware is there so I am hopeful in the not to distant future, suitable software will appear on the scene. Maurice J. Banhahn, World Vision Foundation of Thailand.

A - *VERSION 2 will have an Font Generating Program to do what youwhat you want to do. You will be able to design 12X16 fonts;however, a 32 pixels design program is not part of 2.0 at this time.*

Q - Why does storing a document in Valdocs sometimes cause multiple listings in the Index?

A - *As explained in the Valdocs User's Guide and on the screen when you give the STORE command, you do not need to enter the name of the file unless you are creating a new file. When you press the STORE key, the interaction window displays:*
Enter or change the index names for this file.
Press RETURN when done.
: :
STORE AS : :
If you are storing an existing file, its name appears after STORE AS : . If you do not want to change the Index name of the file, then all you do is press RETURN. The STOREing process will then use the displayed name and, since there has to have been another file out there by that Index name originally, the STOREing will erase the origional from the Index list and put the new file in its place. If you type anything at all to that Index name; however, the STOREing process will not erase the original file but will add the new file to the Index list. Be sure to just press RETURN if you want to erase the original and keep the new.

Q - Is it possible to set up the QX-10 with a serial printer to print Valdocs?

A - *At this time, Valdocs is written to support only the parallel port. I have tested the NEC 3530, Diablo 630 and Qume Sprint 11, and these all work fine with Valdocs set up for other printers;however, VERSION 2 will have a serial port selection for printers. So in the near future you will be able to use SERIAL printers.*

Q - Is it possible to print a Valdocs file with the Index turned off?

A - *No. Only indexed files can be printed. This feature speeds up the STORE and RETRIEVE functions.*

Q - XMODEM uses CTRL-X to abort. CTRL-X causes VALDOCS mail to hang up the phone. How do you get the two to work with each other?

A - *The problem definitely does occur when using VALDOCS mail and XMODEM. Unfortunately, it is not an advertised feature of VALDOCS to download files in conjunction with XMODEM, and there is that slight glitch.*

Con't on page 30

EPSON QX-10 ACCESSORIES

CR103 Modem Card (fits inside QX) . . . $ 179.00
Titan MSDOS Card (user can install) 795.00
CRI Comrex Letter Quality Printer (Daisy Wheel wide carg.) was $995 . . . . . 595.00
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QX-10 Products

QX New Easy Data Base

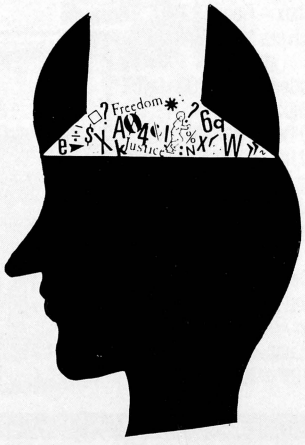
Brian Lomasky has released a database program for the QX. Totally menu driven with extensive help menus, it is indeed in the Valdocs tradition. Data can be stored on any disk with a maximum of twenty files per disk. Each file can have up to forty columns with a maximum of fifty characters per column, for a possible record length of 2000 characters. You can sort or search by any column in the database. There is also extensive support for Epson printers, with menu-selectable print styles available. The price will be $95 with free updates available. Contact: Brian Lomasky, 984 Hanover Road, Meridan CT 06450

Epson Plotter

Epson has introduced a four-pen color plotter. It will feature 42 intelligent commands, reducing required programming time. A snap-in pen cassette speeds pen changes of the ten available colors. An Epson RX-80 dot matrix printer emulator allows the printing of text within graphic displays. The suggested retail price is $599, with availabilty scheduled for September. Contact your local Epson dealer.

Speech and Sound Synthesizer

This QX-10 compatable board provides speech and music capability for the QX. Speech is generated with the onboard micro processor's Text-to Speech algorithm that allows 64 different pitch and 15 volume levels to be chosen with simple control commands. Music is generated by the dual three channel sound generators. The package includes a disk with two menu driven interactive programs and a user's manual, and will retail for $319. Contact Universal Computer Products, 17482 Jordan #3B, Irvine CA 92715.



Mind Amplifier

The KAMAS (Knowledge And Mind Amplification System) system is an integrated software package designed for use in the area of developing and organizing textual information. Based on the concept of outline processing, KAMAS is the first such system developed for personal computers, as well as being the first developed for CP/M systems. Outline processing is a unique kind of software allowing classification of information in outline structure, and altering and accessing information based on the outline constructed. The system also includes information retrieval, telecommunications, and programming applications sections. The suggested retail price for a package configured for the QX is $150. Contact: Compusophic Systems, P.O. Box 5549, Aloha OR 97007

ComRiter 420

This new high speed dot matrix printer is scheduled for release this fall with a list price that will be under $2500. Capable of 410 cps in draft mode and 104 cps in correspondence-quality mode, the printer will have an 18K buffer and a built-in panel of control keys for selecting type styles and form length. It will also have switch selectable serial and parallel interfaces. Contact: Comrex International 3701 Skypark Drive, Suite 420, Torrence CA 90505.

Advertising Analysis Software

Alpha Computer has released three advertsing analysis packages. Two of these products: TV Market/ Schedule Analysis and Reach and Frequency Planner, are spreadsheet templates designed for use with PeachCalc. The third: Media Director II, is an updated and enhanced version of its 1983 release. Contact: Alpha Computer, 4 Irvine Row, Carlisle PA 17013.

MAG Software Training

Mag Software has created a training package for use with its data management software. The package consists of 30 minutes of one-on-one telephone support and an Application Guide with user tips, basic instructions and a glossary of computer and data management terms. The package will sell for $99. Contact: MAG Software, 21054 Sherman Way, Suite 205, Canoga Park CA 91303.

ELECTRIC WEBSTER

This is a spelling checker program that is also capable of grammar checking. It contains a 50,000 word literal dictionary that has an almost unlimited expansion capacity. Suggested retail price is $150. Contact: Cornucopia Software, P.O. Box 5028, Walnut Creek CA 94596.

Sunol Networking

A storage and networking system with a capacity of 368 MB and the capability to link the QX-10 up with over 60 different microcomputers and 6 different operating systems is now available from Sunol Systems. This system provides a common storage area for access by all computers and allows for file transfer between different types of operating systems and disk formats. Contact: Sunol Systems, P.O. Box 1777, 1187 Quarry Lane, Pleasanton CA 94566.

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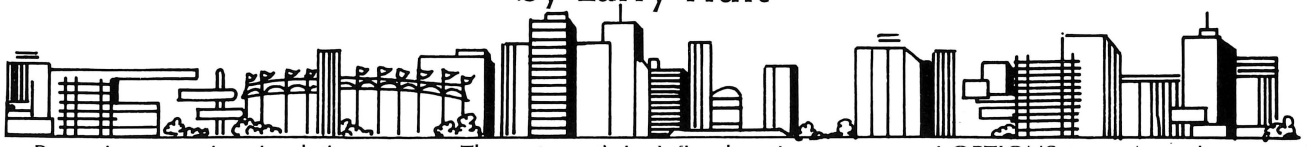
BARON
The Real Estate Simulation

by Larry Huft



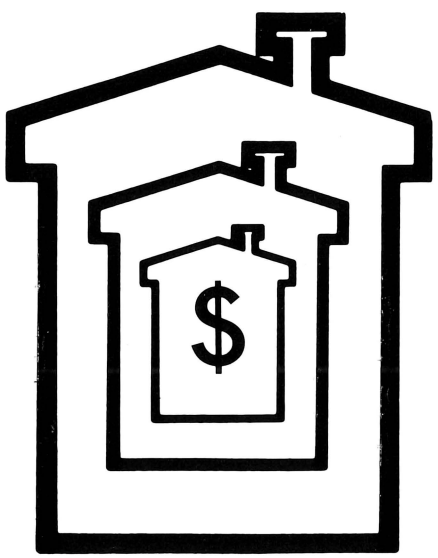
Baron is a superior simulation game from Blue Chip Software. This fantastic game allows you to dabble in the exciting and lucrative world of real estate investment, and not risk a cent of your hard earned money. Imagine becoming a real estate baron with vast holdings around the country. Buy a track of land in Florida, and sell a high rise in New York. Maybe you have a couple of hundred thousand available to loan out on a second mortgage. Or maybe you've been looking at this piece of property, but not quite sure yet. Then buy an option on it. Later, you can buy the property if it begins to increase in value.

Baron is a complete economic simulation of the real estate market. The mortgage and property appreciation rates are not random numbers, but appear to be based on an actual real estate market. A wide array of graphic and tabular data allows you to research property price trends around the country. You will be able buy and sell mortgages, residential property, business, and land in California, Texas, Kansas, Florida, and New York. With the research tools available to you in Baron, both novice and expert investors can search for that perfect opportunity to make a million bucks and become a land BARON.

Blue Chip presents you with well written documentation that leaves no question unanswered. You are first given a quick course in real estate investments. The objective is to make a million dollars by buying and selling in the real estate market. One session of the game lasts 60 months, being played one month at a time. As with other Blue Chip simulation games (Tycoon and Millionaire) the greater your net worth the more you can do. The net worth is defined as the sum of all your assets (cash, property, etc) minus your liabilities (taxes and closing cost obligations.) Sound familiar? As a novice (beginner) you will have $35,000 to work with. You will be able to buy/sell property, borrow up to 80%, do options on investments, handle second mortgages, and make speculative investments. At $100,000 you can borrow up to 90%. At $250,000 your closing costs drop from 7% to 4%. Drop below $5,000 and you are declared bankrupt and given $20,000 and a clean slate to try again.

Baron is a menu driven game with the following options:

1-MONTH to advance to the next month
2-DISPLAY GRAPHS of the price movement on any of the properties.
3-BUY/SELL real estate



4-OPTIONS to see/exercise an option
5-LOAN to take out or pay back a loan
6-NEWS items and price changes
7-DESCRIPTION of the real estate
8-DISPLAY PORTFOLIO of your property
9-ALTERNATE INVESTMENTS such as lending money to other computer generated investor and take a mortgage from them as security of the loan.

The computer can store up to 14 players' game status. If you want to stop a session before the 60th month, you can save the complete game status, including the real estate market environment scenario, and recall it later. WARNING — only one game can be saved on the disk at a time. If you have saved a game and subsequently your friend saves a game, the first saved game will be erased.

At the end of the 60 month period, which is December 1988, Baron will convert your holdings into cash. This amount plus you status is saved by the computer. You can then start a new 60 month session with the cash and status earned in the previous session. Over a number of sessions, with a little luck and a lot of skill, you can become a Baron.

As I have mentioned, Baron was written to be enjoyed by both the novice and the seasoned real estate speculator. It reflects the real world of real estate without the inherent risks — losing your money! As with Millionaire and Tycoon, this game is highly recommended.

For more information on "Baron" contact your dealer or, Blue Chip Software, 19818 Ventura Blvd., No. 204, Woodland Hills, CA 91364.

▲ ▲ ▲

Forth

A high-level programming language

by Gordon Minns

This is the first of a series of articles which describe the FORTH language. In a future article we will discuss how it is implemented on the Epson HX-20 Notebook Computer.

FORTH is a high-level programming language which offers several advantages over BASIC:

1. You can extend the language by adding your own, special-purpose commands.
2. A FORTH source program is compiled onto compact run-time code which is much faster than the equivalent BASIC program.
3. It is a structured language, which encourages the writing of code which is easy to read and modify.
4. FORTH provides many commands for bit and hardware manipulation, making it an excellent choice for control and data communications applications.
5. Some versions of FORTH have facilities for organizing data into logical structures (resembling dBASEII); this greater simplifies the creation of programs which gather and manipulate data.
6. FORTH produces code which usually requires less space than the equivalent BASIC PROGRAM.

ORIGIN OF FORTH

FORTH was developed during the 1970's by Charles H. Moor to facilitate the programming of computers to control telescopes. As other computer users became aware of its existance, the language began to be implemented on a variety of processors. This activity has been stimulated by the Forth Interest Group (FIG), P.O. Box 1105, San Charles, CA 94070. The group has had much to do with FORTH's popularity by publishing a newsletter and encouraging the use of FORTH on a variety of microprocessors.

FORTH can be regarded as a collection of useful subroutines called words. The programmer prepares a source document by organizing the words into meaningful sequences which are then reduced to compact run-time code by FORTH's compiler.

A most attractive feature of FORTH is that its set of commands (words) can be extended. That is, if you need to perform some function for which a command does not already exist in the language , you

can develop your own, using FORTH commands. The language consists of a set of pre-defined commands, called words. Each word performs a specific function, such as adding two numbers together, storing a value in memory, or printing a number on the display.

As in most languages, FORTH programs are built by combining the standard command words into sequences which the computer understands. Unlike other languages, these standard words can be used to define new words to tailor the language to meet special needs. Programs employing these higher-level words are easy to read and modify.

THE FORTH STACK

Lets explore how FORTH works by first learning a few standard words. FORTH uses a type of notation for arithmetic expressions called Reverse Polish Notation, together with a "stack". This is the same scheme used in Hewlett-Packard calculators. The stack is an area of memory into which numbers can be stored temporarily. In this memory, numbers can be placed, one above the next, with the most recent entry on the top of the stack. Figure 1(a) shows the stack when it contains one number; Fig. 1(b) shows the stack after also entering the number 3:

Fig. 1.

	(a)	(b)
top	[2]	[3]
	[ ]	[2]
	[ ]	[ ]

Note that when the 3 was entered, it pushed the 2 into the next-highest position.

To illustrate how arithmetic is done, consider the FORTH word [+], which replaces the topmost two numbers on the stack with their sum, as shown in Fig. 2:

Fig. 2

before		after	
top	[3]	top	[5]
	[2]		[ ]
	[ ]		[ ]

The preceeding notation is rather cumbersome. A better way to depict the before/after effect of a FORTH word is to list the contents of the stack prior to execution of the word on the left, then the symbol"---", which represents the word itself, followed by the contents of the stack after the word has executed. The addition example of Fig. 2 is repeated below, using the new notation:

2 3 ---5

Note that the rightmost entry in each list of numbers represents the top of the stack.

The glossary below contains the definitions of the four common arithmetic words:

ADDITION [+]
n1 n2 --- (n1+n2)

SUBTRACTION [−]
n1 n2 --- (n1−n2)

MULTIPLICATION [*]
n1 n2 --- (n1*n2)

DIVISION [/]
n1 n2 --- (n1/n2)

NOTE: The symbols "[" and "]" are not part of the FORTH word, and are used only for clarity.

A typical FORTH arithmetic sequence to compute (3+4)*2 would be written:

3 4 + 2 * . (NOTE: this is a "period" character)

The expression is executed from left to right, in steps:

1. put 3 on the stack.
2. put 4 on the stack.
3. Perform the [+], removing 3 and 4 and leaving 7 on the stack.
4. Performing the [+], multiplying 7 by 2, leaving 14 on the stack.
5. The Forth word [.] displays the answer.

It may seem, at first, that the stack is more trouble than it is worth; however, the stack concept has several advantages, including:

1. Reducing the number of (memory-consuming) intermediate variables.
2. As a means for passing parameters to other, perhaps higher FORTH words.
3. Makes newly-defined words more universal, by eliminating the need for defining them in terms of named variables.
4. The stack can be used to pass parameters to assembly-language subroutines.

EXTENDING THE LANGUAGE

It is quite easy to define new words. The definition has four components, and is written in the form:

: name word(s) ;

The parts of a new word definition are:

1. The FORTH word [:], "colon" indicates the beginning of a new definition.
2. The word after the colon "name" is the name of a new procedure, and can be up to 31 characters long.
3. A sequence of one of more FORTH words, follows the "name" and may be either those supplied with the system, or new words making up the definition of the new procedure.
4. The FORTH word [;], marks the end of the definition.

FORTH programming involves defining one word after another, each at a higher level. This building block approach has the advantage that new words are always defined using older, previously-defined and error-free words. This makes debugging easier. As each word is defined, it can be compiled and tested before it is accepted into the "dictionary", the term given to the collection of words comprising the FORTH language.

It is quite natural to develop words which perform specific, but generally-useful functions, such as performing the calculation of a complex formula, or performing an analog-to-digital conversion. This modularity allows the words to be used in other programs, permitting the programmer to build a library of program modules.

The FORTH compiler produces code which is both compact and nearly as fast as assembly language. For very high-speed applications, FORTH has a built-in assembler so that new words can be defined using machine code, although the feature is rarely needed. Some versions of FORTH produce code which can be put in PROM, conserving RAM for variables.

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Persons interested in using FORTH on the HX-20 should contact the author at 34 S. Main St., Suffield, CT 06078, (203) 668-1350. Send for further information about FORTH books and the HX-FORTH language implemented for the HX-20.

by Brian Hufty

The newly introduced LQ-1500 letter quality dot-matrix printer from Epson is just that, a high quality dot-matrix printer capable of near daisy wheel letter quality printing. This applies for either text or graphics characters, which Epson states in the User's Manual has 224 different styles.

This review concentrates on various aspects of testing results on the LQ-1500 by a relatively non-technical Epson QX-10 computer user. Testing was conducted in the following areas: documentation, quality of hardware and design, ease of set-up, ease of general operation, operation with software in general use with the Epson QX-10, and some conclusions on price/benefit and consumer market.

Documentation

The documentation included in the box with the Epson LQ-1500 consists of a 98-page User's Manual. It is clearly and concisely written to give the "take it out of the box and plug it in" user the basics of set-up and operation of the LQ-1500 printer. This seems to have been the general focus of documentation writers for other Epson products, and is consistant with this product. The major areas of documentation include: an introduction to the manual and major features of the printer, set-up, operation and maintenance, installation of paper and paper feeders, a brief explanation of control codes, and the remaining half of the manual is devoted to various appendices. In all honesty, the documentation is very skimpy. It does a good job of giving the person in the secretarial/printer pool the ability to set up, plug in, and begin to use the basic features of the printer. To use the full set of features of the printer, and to gain an understanding of the capabilities of this machine, it is essential that you obtain the LQ-1500 Programmer's Manual, and the "Application Notes" from either your dealer or Epson. This may not be necessary for those people familiar with printer programming in MBASIC, but is highly recommended.

Hardware Design/Quality

The LQ-1500 is a rather large 24 3/4in X 14in X 5 1/2in (625mm X 363mm X 130mm) and heavy (14kg) piece of equipment. It is attractively designed in the fimiliar off white plastic of the Epson product line, and is compatible with the QX-10 system. The control buttons are familiar in that they are the same as on other Epson printers.

The LQ-1500 is an impact dot matrix printer with a 24-pin print head (as opposed to 9 on the FX printers) capable of printing bidirectionally at 200 CPS in the draft mode, and 67 CPS in the letter quality mode. The character matrix is better with the LQ than with the FX, with a 9 X 17 on the LQ, and 9 X 11 on the FX. The 15 X 17, and 37 X 17 character matricies allow for the greater clarity and near letter quality printing on the LQ. An amazing 272 character column width is possible with the compressed Elite print style.

The printer comes standard with a single-sheet friction feed, three piece paper guide that is very useful in single sheet operation or in separating sheets of continuous feed paper, and a smoke colored dust cover. A pin-hole tractor feed is optional, although not necessary. I have not had any problems using the standard tractor unit with continuous feed paper; however, you may have a slight problem in establishing correct margins with form feed paper.

A required item, the computer/printer interface card is listed as an option. This is a cable ready interface that plugs in at the rear of the printer and allows operation with various types of computer port configurations. Interfaces for Centronics parallel, serial, and IEEE 488 are available. Use of the interface cards is a nice idea in terms of portability to various types of computers, but should come STANDARD with the printer, and not as a $100 - $150 addition.

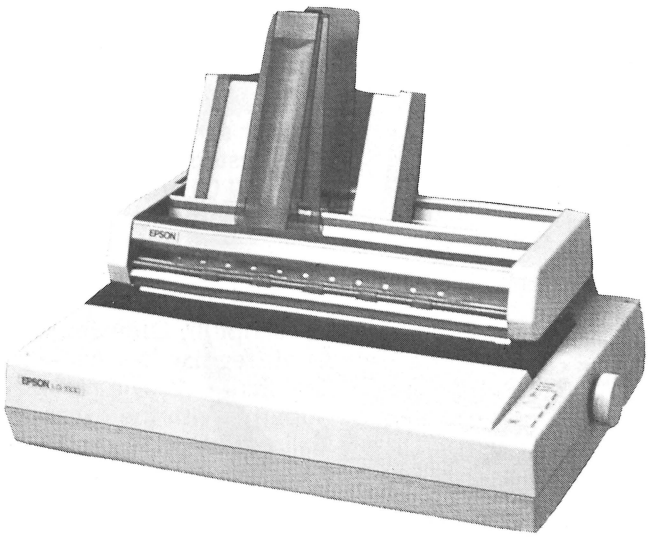
The print ribbon is easy to install with no mess, and with plenty of room inside the ribbon compartment to work. The liberal use of foam padding for noise reduction in the ribbon compartment is an example of thoughtful design.

Ease of Set-up

It is important to read the User's Manual prior to setting up the printer, to save time and effort in doing it correctly the first time. Anyone that has set-up any other Epson printer could do so with the LQ without reading the manual. Selecting an appropriate location for the printer prior to unpacking it is a great back saver. This is one piece of equipment you do not want to move around often. Installing the front cover, dust cover, and sheet guide are very simple. If you read the short section on installing the cable interface, you should have no problems with this item either. Inserting the paper is really a joy with this printer. Regardless of the type of paper, it is easy to load. The paper bail automatically

opens and closes, and the paper has always loaded square for me, which eliminates many hassles. Entire set-up time can be achieved in ten minutes.

Unless you frequently use or need letter quality printing, I would suggest setting DIP switch 2-7 in the DOWN position (draft mode). This allows for faster printing, and does not preclude using letter quality printing commands with Valdocs. If DIP switch 2-7 is set in the UP position, you always are in letter quality mode, and when used with a letter quality command from a program, prints in proportional mode.



Ease of General Operation

In general the Epson LQ-1500 is a very easy printer to use. However, to utilize all of the features of the printer (Epson states 224 print styles using all the permutations of draft, letter quality, proportional, compressed, expanded, Pica, and Elite), some knowledge of printer programming is necessary either within the structure of the print commands of the particular software you are using, or in a program you are writing. The machine does what it says it will, which is nice to be able to say. The LQ-1500 does produce near letter quality printing easily and quickly. In draft mode the print head literally flashes by, and in letter quality or proportional mode, operates at 2 to 3 times faster than a conventional dot matrix in similar mode or a regular daisy wheel printer. Once set-up, you should have no trouble getting the printer to do what you want.

Special Features

The LQ-1500 printer has a number of features that separate it from the rest of the pack. They are:

- 24-pin print head with 9 X 17 to 37 X 17 character matrix
- 67 CPS letter quality to 200 CPS draft printing mode
- 224 print styles and super/subscript capability
- Allows the user to define special characters in either draft or letter quality mode as well as in proportional modes.
- High-resolution graphics capability
- 2K text buffer
- Upward compatibility with the FX series of Epson printers

Software Operation

I felt it was very important to evaluate this printer with various applications that I frequently use with my QX-10. The applications used in this evaluation were Valdocs versions 1.14 and 1.18 for those using the old version for some reason, the Peachtree Series 9 PeachCalc and PeachText, QXDRAW 1.4, and Fancy Font.

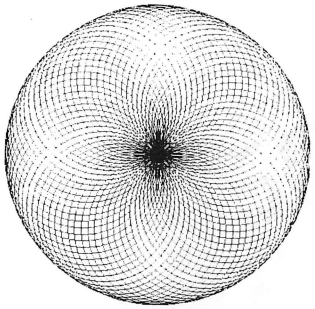
VALDOCS 1.14/1.18

There is virtually no difference between Versions 1.14 and 1.18 of Valdocs with regard to the LQ-1500. Text printed under the Valdocs PRINT menu commands with DIP switch 2-7 DOWN (draft mode) on the printer results in draft or letter quality Pica type. With DIP switch 2-7 in the UP position (LQ), text is printed in either letter quality or emphasized Elite type.

There is no difference in quality or type style when producing a screen dump under Valdocs 1.14 with the printer DIP switch 2-7 up or down; both are printed in draft quality expanded Pica with line border. A screen dump with 1.18 prints draft quality Pica with the DIP switch down (draft), or letter quality Elite with the switch UP (LQ). The border is printed not as a line but as lower case "h's" and "i's."

There appears to be no difference in quality or type style in printing charts and graphs in either Valdocs version regardless of the DIP switch setting. Line, Bar, and Scientific graphs are printed clearly in draft mode; however, pie charts are eliptical or "egg-shaped" rather than circles, whether or not the slices are expanded. This is a definite drawback which does not occur with the FX series printers.

Note, that with Valdocs 1.18 you should select the LQ-1500 up as MX-100 in the SETUP MENU and do not try to download graphics characters to it. The reason the pie charts are eliptical is due to a difference in how the line spacing is done.



PEACHTREE SERIES 9

The Peachtree Series 9 PeachText documents are printed in either letter quality regular Pica, or letter quality compressed Elite depending on the setting of DIP switch 2-7 on the printer. Other printer functions are not operational. If the d/s is UP (LQ), you get: 40 column letter quality compressed Elite type. If it is set in the down position: the document is printed in a regular 80 column format in the letter quality regular Pica style. It is exactly the opposite under PeachCalc. The print head moves very fast bidirectionally under Valdocs or the Peachtree Series programs when in text mode.

QXDRAW

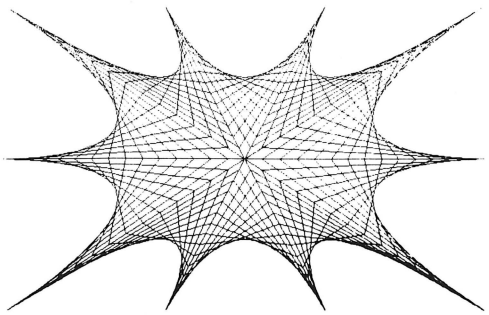
The DIP switch setting makes no difference in either quality or style when using the new QXDRAW program,it is printed in high quality draft. The figure or screen will be printed either horizontally or vertically on the paper using the 1 (MX) or 2 (RX) print commands respectively. The 3 (FX) print command does not work either with the d/s UP or DOWN. As with the charts and graphs printed under Valdocs, the screen and figures printed using QXDRAW are printed unidirectionally at 200 CPS in the draft mode.

FANCY FONT V.1.7

The Fancy Font (TM) program utilizes more features of the LQ-1500 in text mode than any other reviewed, and exploits its features almost to the same extent as programming it yourself would.

As in most cases, the DIP switch setting results in an imperceptible difference in quality in the type, regardless of the font, size, or style. Ten different fonts were tested with the DIP switch 2-7 UP (LQ) and DOWN (DQ), which represented a variety of types, sizes, and styles. Those used were Roman: (regular 8,10, bold, 10, italics 10, superscript 8, subscript 8), Olde English 18, Sans Serif (regular 10, and italics 12), and Script 12. The results were superb! With the exception of the italics, dots were not visible, and only very slightly visible on the character edges on the italics. The Olde English characters were fully filled and excellently formed, as were characters in all other fonts. Underlining was very clean.

Printing in the Epson character fonts, using all print modes, and both letter and draft quality, produced the same fine results only-faster. The LQ-1500 prints unidirectionally with the Fancy Font character sets, and bidirectionally with the Epson character sets.



Conclusions

The Epson LQ-1500 printer is a high end-user or office environment near letter quality dot matrix printer. The market for this printer is definitely business or individuals producing high volume printouts. The retail price with interface (and you MUST have the appropriate interface) is in the neighborhood of $1600 which makes the price/benefit out of the range of most individual users, but definitely IN the range of most businesses. The quality surpasses that of other dot matrix printers in letter quality and is so close to daisy wheel quality that you could easily save yourself or your company several hundred dollars by purchasing one Epson LQ-1500 rather than both a dot matrix and daisy wheel printer.

The set-up and general ease of use is very good. The documentation supplied with the printer; however, is quite limited. Although it is clearly and concisely written, the **User's Manual** should be supplemented with the LQ-1500 **Programmer's Manual**, and the Application Notes, available from Epson.

The LQ-1500 works well with most software applications, although you may not be able to take advantage of all of the features of either the printer or program being printed. This may change with the new version of Valdocs if the SETUP.SYS allows for configuring for the LQ-1500. Some knowledge of printer programming is very useful, although not essential in utilizing all of the features and capabilities of the printer.

Most graphic displays printed on the LQ-1500 are excellent with the notable exception of eliptical pie charts produced under VALDOCS. Some may consider this a significant negative, if there is a frequent need for this type of graphic printing.

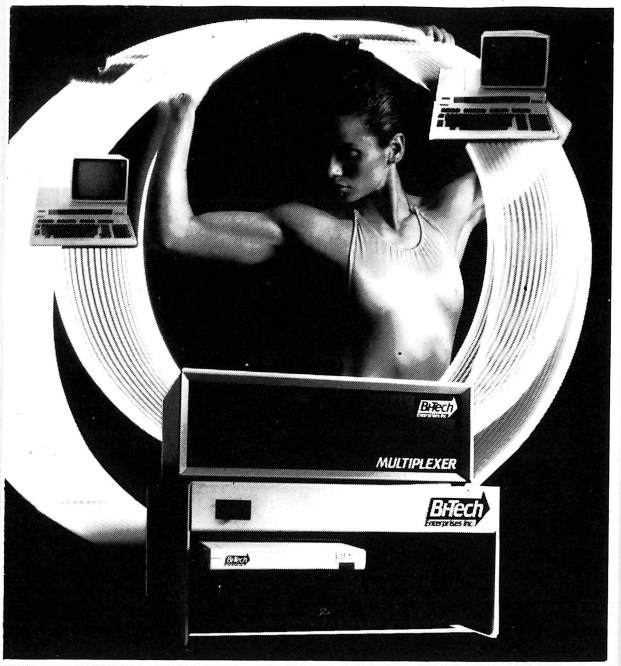
Overall, I would recommend the Epson LQ-1500 printer to those individuals with the need for reliable high volume letter quality/graphics printing, and certainly to small or larger businesses that utilize both dot matrix and daisy wheel printers. The purchase of an LQ-1500 could possibly save money through the purchase of one rather than two, printers.

▲ ▲ ▲

A powerful combination

The Epson QX-10

The Bi-Tech Multiplexer & Hard Drive System



THE BI-TECH HARD DISK SUB SYSTEM

Combining proven technology with innovative Bi-Tech design, the highly reliable 5.25-inch HARD DISK DRIVE SUB-SYSTEM fulfills the fundamental requirements of a peripheral storage device, which provides mass storage, high speed data transfer, and removable backup capability.

THE BI-TECH MULTIPLEXER

By adding the multiplexer to your Hard Disk you can add more computers to your system. Four (4) users can share 1 Hard Disk subsystem. An essential unit for a small to medium size business where multiple computers need to share a common data base. Different models of computers as well as multiple operating systems can share the Hard Disk Drive at the same time.

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Yet, it provides a total storage capacity of 5.0 Mbytes. Pre-recorded embedded servo information provides for the most reliable cartridge interchangeability and data integrity in the industry.

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HR-5

by Bob Hermann

SPEC SPOT

Product: Brother HR-5 Portable Printer
Type: Battery/AC adapter powered, 80 column, 30cps, dot matrix non impact, thermal or thermal transfer (by ink ribbon) serial printer
Required peripherals: None
Price: $240
Ease of Use: Excellent
Performance: Good
Documentaion: Good
Summary: Versatile, quiet with usual thermal print quality, but not rugged enough to be truly portable**Manufacturer:** Brother International Corporation
8 Corporate Place
Piscataway,NJ 08854

Measuring 12"x2.9"x2.6," this printer will hook up to the HX-20 with the Epson 715 cable to provide 80 column print on either thermal roll, thermal cut, or ordinary roll or single sheet paper. It enjoys the same freedom from power cords that the HX has but may also be operated with the included AC adapter, this affords the user the capabilty of producing an 80 column printout anywhere he totes his HX.

The print character produced is typical of most thermal-type printers, which are not considered letter quality. The 7x9 dot matrix print head produces all 96 ASCII characters and 63 graphics characters, with letters of the alphabet actually represented with a 5x7 matrix. The letters produced do not have descenders, but are fairly legible. The printer, by software command, can produce: elite, emphasized, super / subscript, reduced, and double wide characters, sometimes at a slower speed than the normal print mode. Certain combinations of these character types are also possible. You could have 132 columns per line for printing out a spreadsheet, if necessary. Software control of tabs, page length (by number of lines or length in inches), underlining, back spacing, line pitch, perforation skip, and paper feed are all features of this printer. Bit image graphics are also possible.

In the normal print mode, output is quietly generated bidirectionally at 30cps. Thermal transfer paper (either roll or sheet) may be used, or, you may easily install a cassette ink ribbon and use the paper of your choice. The maximum paper width allowable is 8.5 inches.

Although advertised as a portable printer, it seems quite fragile in construction. No carrying case is provided, nor does the manufacturer anticipate any plans to produce one. In addition, the roll paper holder sticks obtrusively out the back end of the instrument, and with no convienient storage options for it, the portability of the instrument would seem to be decreased even further.

Next to the on/off switch, there is a line feed key, an on/off line key and lamp, paper advance knob, paper release lever, and an alarm light indicating either no paper or the end of the ink ribbon cartidge. Available with either a Centonics parallel or RS-232C interface, the latter option allows direct hookup to an HX-20 with an Epson 715 cable. The dip switches are conviently located, allowing for the setting of baud rate (110, 150, 300, 600, 1200, 2400, 4800, and 9600 baud), four international character sets, bit length, parity, line pitch, and perforation skip with a pencil, and requiring no disassembly of the unit.

The documentation accompanying the unit is thorough, providing many pictures of necessary manual maneuvers and illustrations of software techniques, as well as detailed descriptions of interfacing requirements. It consists mainly of tables and examples, however, and does not present the user friendly atmosphere created by many Epson printer manuals.

One interesting feature of this printer is not found in many of the more expensive, letter quality printers. You may successfully output a several page SkiWriter file on single sheet paper. Those familiar with this problem will appreciate its uniqueness. The end of a page of paper causes the printer to go offline, offering the opportunity to insert and position another page before continuing the printout by hitting the "Online" button.

Considering the size of the package, this is quite a versatile little printer. The print quality produced is not that great, so one could argue that the selectivity of character style offered is academic, but for the appropriate purpose, it may not be so academic. Advertised as a portable, battery operated printer, it is battery operated; however, its fragile construction material may not stand up to much punishment . Without a carrying case, one has to wonder how it could be represented as being truly portable.

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Software Review

SALE TRACK

by Ralph G. Ruh

SPEC SPOT

Product: Sales Management Applications Software
Computer: Epson QX-10
Specifications: Z80 or 8080 Based Processor, 56K or Greater System Generation, Two 128K or Greater Disk Drives, 80 x 24 Column Screen, Printer
Price: Suggested retail $495.00
Ease of Use: Excellent
Performance: Excellent
Documentation: Good
Summary: Sale Track offers the professional sales manager an excellent tool to manage sales personnel, maintain sales territories, sales proposals, etc. Also excellent for retail sales situations.
Manufacturer:
Koch Industries
Formerly M.B.S. Systems
Box 812
Northbrook, Il. 60062
(312) 228-0590
Marketed by:
KNE Resources
546 Crossen Avenue
Elk Grove, Ils. 60007
(312) 228-5850

In my profession, which is Director of National Account Sales, for a large midwestern company, I have a strong need for an applications database program which is suited for the sales profession. For many years now I have been searching for just the right program. I have written some of my applications needs in other database managers such as DBASE II which has not always fit my particular requirements. In my travels through my territory I often stop in local computer stores just to browse and keep up with whats happening. Recently, I happened to stop at a computer store in central Ohio to browse and check the new database systems that have hit the racks. I saw a red manual on the back shelf that said SALE-TRACK so I picked it up to see if it had 500 pages or more of documentation, which is my first reaction to software manuals. The large verbose manuals usually indicate a very complicated and difficult piece of software. After looking thru the manual and reading the sales brochure on the SALE-TRACK program I had to stop and pinch myself to see if I was dreaming. Could this be the long sought software that I have been searching for years for? Before I answer that question lets look at the features of this database applications program in some detail.

The SALE-TRACK program offers the following features:

- Complete Prospect or Client Management
- Expense Management
- Automatic "Tickler-Date" Reminders
- Calendar & Appointment Management
- Quotation Generation & Tracking
- Letter & Mailing System
- Back-Order Tracking
- Personal Phone Directory
- Convenient "Note Pad" Feature

The SALE-TRACK software runs on the Epson QX-10 under CP/M-80 release B. All of the system software comes on one distribution disk. There is no setup or installation to worry about since the software is already configured to run on the QX-10. A typical functioning system only requires two disks, one system disk containing the SALE-TRACK software and a data disk for the right drive. The QX-10 disk format contains 376K of data storage, and each record generated by SALE-TRACK is 1K in size, so I figure the data disk to be able to handle 300 prospect files. If you use many of the other features of SALE-TRACK, such as the Expense Management, Phone Directory, etc., your prospect storage availability will be reduced by the size of the other generated files. I don't feel this to be a problem, since 300 prospects for any given sales representative is a large one indeed. Naturally, if you run this software with a hard disk drive your total prospects allowed for each sales representative jumps to 65,535.

The Prospect Management feature of SALE-TRACK is its strongest and most outstanding feature. With a typical applications software program you are always at the mercy of the programmer. The fields are pre-set and you must always tailor your information requirements to meet the software. **SALE-TRACK** really shines in this area because of the unique feature of CUSTOM QUALIFICATIONS, which is a set of five questions that are defined by you to meet the needs of your particular sales situation. With the ability to define five questions you can set up custom qualifiers for your prospects which provides great flexibility in the management of your clients. In addition, you can also use these five custom fields to sort and index on as well as the other data fields which are pre-defined in the program. All of the data fields have been well thought out by the programmer to meet the needs of most sales applications that I can think of.

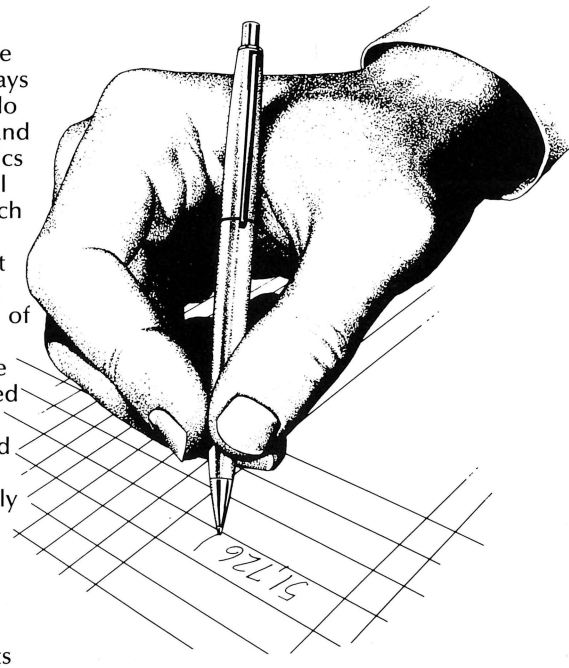
In respect to speed of operation I found the SALE-TRACK software to be very acceptable. I used a prospect database of 100 clients for my test and found that it required 4 minutes to sort and index the database which included the time spent to remove the system disk and insert a blank formatted diskette for a work drive. Running the program is a dream, since it is fully menu oriented. You have full editing of prospects records,

prospect look up, sorting and listing available at the touch of a key. You have the ability to list your prospects in three different ways which allows full control of your clients records. A full listing will list all data on the prospect. A summary listing will just list the basic information of the prospect. You also have a tickler listing which will list all prospects that have the tickler due date.

Another important feature of SALE-TRACK is its ability to work with WORDSTAR™ to generate customized mailings of letters and mailing labels on all or selected prospects from your prospects database. Included in its vast menu is Expense Management which I personally found to be quite extraordinary, since this area is always a pain in the neck for me. All you do is enter your expense information and SALE-TRACK handles the mathematics and does a report printout listing all your expenses with sub-totals in each expense category and a final grand total. My company found the report to be adequate for their accounting needs therefore saving me the time of filling out my company expense report at the end of each week. The only other feature I would have liked to have in this area is some way to subtract expenses that were charged to a company credit card thereby leaving the grand total to reflect only the money due to me.

The next item on the agenda is the Calendar & Appointment Management feature. With this selection you can maintain a complete calendar of appointements for each months activity. I found this feature to be acceptable and workable, however the field lengths for setting appointments needs to be longer to allow enough space for company name and contact. This is a minor problem at best. Again, you can do a printout of your calendar and appointments and take it with you on the road. Note-Pad is another nifty feature. Use it to jot down notes and little details that come up while on the phone or while you are just thinking. After you have your notes recorded you can call it up on the screen or print it out.

Also available to you is a private Phone directory which is very useful for quick look up of phone numbers which is separate from your prospects database. SALE-TRACK has a feature that will save a salesman a great deal of time and effort called QUOTATION GENERATION & TRACKING. All you have to do is sit down and tell **SALE-TRACK** to generate a quote and it will do so with complete client information at the heading along with your company name. It even calculates sales tax, discounts and shipping/handling costs. You can print the quote on letterhead or stock paper and print as many copies as you wish, each one an original. Pretty impressive indeed!



Documentation

The documentation for SALE-TRACK comes in a handy three ring binder with complete table of contents directing you to each feature of the program. The manual is 145 pages in length with 5 appendices. The only thing missing is an index which might be helpful in looking up particular items for review. I found the manual to be straight forward in its description of each feature of the program. One item which I felt needed a little more information on is the Letter Data Merge section. Just a bit more information on the use of this feature might be needed by some users not completely familiar with wordprocessing programs. Each screen that the user is confronted with while running the program is displayed in the manual as it appears on the screen along with descriptive information on each item. I feel the manual is well thought out and presented in a manner easy to understand by anyone. In addition to the manual the program itself has help screens available to the user at the touch of a key. When you use this built in help key you will be provided with helpful information concerning the area of the program you are currently using.

Support

During my evaluation of the SALE-TRACK program I had the opportunity to call KNE Resources on a number of occasions to ask questions about certain areas of the program. On every occasion I found everyone very willing to help me. If a question could not be answered immediately I was called back with the answer within 24 hours. KNE seemed to be very interested in user feedback and receptive to suggestions or additions to the software.

Summary

I am very impressed with SALE-TRACK as an applications database program as you can tell from my comments. I am confident that this software package will fill my client profile needs for many years to come. Its innovative approach to handling the time consuming and often dreaded paperwork areas of the sales profession leaves me in awe! There are a couple of items in the software and manual that needs some attention which I feel sure the authors of the program will consider in any future upgrades of the program. If you are in sales and need a good quality program that will perform most all of your paperwork tasks then I highly recommend this software to you. In the beginning GOD created the heavens and the earth, KOCH INDUSTRIES gave us **SALE-TRACK**.

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INTERNAL MEMORY EXPANSION BOARDS

FROM 16K to 128K

With the introduction of the XM series of internal RAM expansion memories, it is now possible to have up to 144K of internal RAM available for program or data storage in the EPSON HX20 Notebook computer.

The memories are designed using the latest in low power CMOS technology so the drain on the HX20 batteries is negligible. They are designed to fit inside the HX20 for compactness and also so the supplied carrying case is still of use.

To compliment these memories there is also available the XMRD RAM DISC software package. This allows the users application software to configure the XM memories as a single disc of up to 120K in size or multiple discs that total 120K. This user friendly software package is written in assembler for speed and efficiency and can be used with application software written in BASIC, FORTH or assembler.

Also available are two software packages; one that will allow BASIC programs of greater than 32K to be written. This software gives the capability of one BASIC program to chain to another program held in the XM memory, under program control. The other package allows a very flexible "virtual RAM FILE" to be established in the XM memory, which gives a highly efficient method of data storage with minor changes to existing BASIC programs.

Information Management Group, Inc.
P.O. Box 2890, Satellite Beach
Florida 32937 • (305) 773-8322

IMG

Special Free Offer

If you use CP/M programs on your Epson, SmartKey II can save you thousands of tedious keystrokes. SmartKey II is the software program that is taking the computing world by storm. Peter McWilliams, William Buckley, and others rave about how SmartKey II speeds up and improves accuracy in computing by eliminating boring and repetitious routines.

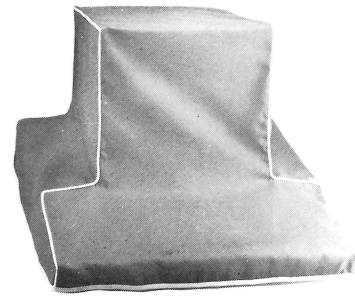
Smartkey II lets you easily reprogram as many upper and lower case keys on your keyboard as you want, even while your other software — such as Peachtext, WordStar, dBase II, etc., — is in operation.

Uses for this powerful, easy to operate program are endless. With SmartKey II you can assign up to 3,750 characters to a single key. Once you have redefined keys, you can put them to work or change them at will. You can also store your "smart key" definitions in a special file and use them later, or make numerous definition files to use with a variety of your favorite programs or projects. Imagine saving complex command codes, boilerplate paragraphs, sentences, proper nouns, inventory numbers, or whatever, and then injecting any of them into your work with the stroke of a single key. This is a must-have, time saving computer program for all QX-10 users. SmartKey II can even make your Epson's HASCI keys come alive and be productive in CP/M programs.

SmartKey II has a little known super companion program called SmartPrint II. SmartPrint II retails at $49.95. SmartPrint lets you give single-stroke commands to your dot matrix printer to make it produce italics, greek characters, graphic symbols, boldface, underlining, extended typefaces, accent marks, and much more. SmartKey II retails at $89.95. Now, for a limited time only, Central's price for a combination SmartKey II and SmartPrint II pack is only $89. In addition, as a bonus, with your purchase you will receive a free copy of Paul Golding's book, *Screen Smarts, The Computer Tamer's Guide*. This book is a $15.95 value. It tells how Mr. Golding, a professional writer, uses SmartKey II to turn his humble computer into a supercharged dedicated word processor. Please don't delay, this offer may not be repeated. Order today to get SmartKey II, SmartPrint II, and a free copy of *Screen Smarts, The Computer Tamer's Guide,* fast.

Introducing A Classic Form Fitting Epson Cover

Photo: Form-fitting cover over CPU, monitor, and keyboard.



At last, the classic Epson dust cover you'll be proud to own and use. This first rate computer cover is made from a premium, lint free, static free, washable, free breathing, and fade resistant sailcloth. It comes in a rich looking Navy blue or Sand. The Navy cover has a smart contrasting silver gray piping and trim that adds a superior finished look. Not to be outdone, the Sand cover is handsomely finished in a rich chocolate piping and trim.

This remarkable form-fitting dust cover makes you feel good and will keep your Epson dust free and looking brand new for years to come. For a limited time only, your price for this factory direct, custom made, sailcloth Quality Cover is $18.95. When ordering remember to indicate color preference. This special low price is subject to change. You must be completely satisfied with your purchase of this cover or we will refund your money immediately. Order today.

Matching sailcloth printer covers for all Epson printers and ComRiters are $14.95 each.

- Quality tailoring
- Easy care fabrics
- Attractive colors
- Professional appeal

Richly tailored inside and out. Look inside any of our Quality Covers; see the ultimate finishing; we use machines that sew with 3 needles so that edges will not unravel or shed lint. We stress perfection because you deserve the best. Compare for long-lasting satisfaction.

FACTORY DIRECT

Letter Quality

Say goodbye to correspondence qual
high–resolution, proportionally spa
Font provides fonts in sizes from
Roman, Bold, Italic, Script, Old En
low–cost Epson (MX, RX, FX) and
Font is an easy–to–use software pa
compatible systems; no special hardv

Actual sample produced by an MX-80 and Fancy Font.

Your Incredible Printing Machine!

Your Epson printer is going to get even better. *Fancy Font* can make it into an incredible printing machine. The *Fancy Font System* is a software program that turns the bits and bytes generated by your computer into over 30 font sets in sizes from 8 to 40 points that can be printed on any Epson or Gemini 10X printer.

Fancy Font styles include Roman, Bold, Italic, Script, Old English, and more. In addition, custom forms, invoices, labels, signs, foreign languages, mathematical notations, view graphs, resumes, newsletters, brochures, complete manuals, invitations, place cards, and high-resolution, proportionally spaced, letter quality business and personal letters can all be printed on your Epson printer with *Fancy Font* at the helm. *Fancy Font* is a product of SoftCraft Inc. You may have seen SoftCraft's national ads. They are printed with *Fancy Font* on a Epson MX-80. The ad is powerful visual medicine. The list price for the fully documented *Fancy Font System* is $180. Central's price for *Fancy Font* is only $149. Order *Fancy Font* today and add an amazing sparkle of creativity to all your printed materials. *Fancy Font* will make your Epson printer come alive. It's magical.

Stop Tearing Up Your Disk Drives!

If you're using your Epson as a printer buffer instead of a computer, you may be tearing up your disk drives. Disk drives are mechanical devices, they are often the first parts of a computer to go sour. No wonder. Everytime you feed your printer a file, the drives whirl madly until the printer has accepted the entire file. Sometimes this takes a long, long time.

The Epson can dump a file faster than a printer can accept it. So, it's great to have a device that will catch the file, quiet the disk drives, and give the computer back to you.

Photo: MicroSpooler 64 K P-P

If you're tired of hearing your disk drives grind down, you need a printer buffer. The best performance and price buffer on the market is the Consolink MicroSpooler. This computer-like tool absorbs files as fast as your computer can send them, and then patiently feeds or spools them to your printer a few bytes at a time.

The MicroSpooler is an intelligent, feature-packed buffer. It is easy to install and operate. Merely place it between your computer and printer, then connect it with two cables, and feed files as large as 64K within seconds to your letter quality or dot matrix printer. The instant the transfer is complete, you can operate your computer again. The MicroSpooler does the rest.

The MicroSpooler comes in a variety of configurations. You can link your Epson to any popular printer with two inexpensive cables. Please check our low MicroSpooler prices. You won't find a more feature-packed or reasonably priced spooler around. Try the MicroSpooler of your choice for 15 days. If you are not completely satisfied with your purchase, return it for an immediate full refund. Your Epson deserves this attractive and useful accessory. Order a compact and powerful MicroSpooler today.

CONSOLINK MICROSPOOLERS

Description	List	Price
64 K P-P	$315.00	$279.95
64 K P-S	$343.00	$299.95
64 K S-S	$349.00	$299.95
64 K S-P	$339.00	$299.95
Cables	$ 54.00	$ 29.00

64 K	Stores and spools files as large as 64 K.
P-P	Parallel Epson port to parallel printer port.
P-S	Parallel Epson port to serial printer port.
S-S	Serial Epson port to serial printer port.
S-P	Serial Epson port to parallel printer port.
Cables	Set includes one special male to female connector and one male to male connector. — Please tell us model and type of printer you're connecting to your computer.

Includes these unique features:

- Status digital readout
- Multiple copy function
- Temporary pause function
- Sleek internal power supply
- Comprehensive self test routine
- Slimline attractive casing
- Front panel reset
- 12 month factory guarantee

Lockable Diskette Defender

Handsome, sturdy, smoke-tinted acrylic tray holds 70 Epson-size diskettes. Flip-up lid keeps out dust, debris, and moisture, and locks securely to guard your important work. Comes with 7 dividers with index tabs for easy filing and to keep floppies upright to prevent bending, warping, and scratching. Tough and secure metal lock never comes in contact with diskettes because it is enclosed in a special plastic housing. Super value at $23.95 for one, or $22.95 each if you buy 2 or more. Keep prying eyes and sticky fingers away from your data. Order today.

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800-624-5628 CA
Information Calls
(805) 524-4189
Central Computer Products

Central Toll Free Order Desk

800-533-8049 USA
800-624-5628 CA

QX-10 Software

CP/M Prod. Description	List	Central
ASHTON TATE		
dBase II	$495.00	$368.00
ATI TRAINING DISKS		
CP/M	$ 39.95	$ 37.00
MBasic	$ 39.95	$ 37.00
Multiplan	$ 75.00	$ 62.00
SuperCalc	$ 75.00	$ 62.00
Wordstar	$ 75.00	$ 62.00
BLUE CHIP		
Millionaire	$ 59.95	$ 52.00
Baron	$ 59.95	$ 52.00
BORLAND INTERNA		
Turbo Pascal	$ 49.95	$ 48.00
CONTINENTAL SOFTWARE		
Home Accountant Plus	$ 99.95	$ 79.95
DIGITAL MARKETING		
Datebook II	$295.00	$228.00
Hyper Typer	$ 29.95	$ 26.00
Milestone	$250.00	$199.00
Notebook	$150.00	$109.00
EAGLE ENTERPRISES		
Citation	$185.00	$155.00
General Ledger	$395.00	$299.00
FYI, INC.		
SuperFile with Sort 'n Merge	$195.00	$145.00
INFOCOM		
Zork Series I, II, III @	$ 49.95	$ 47.00
PlanetFall	$ 59.95	$ 55.00
Deadline	$ 59.95	$ 55.00
LEXISOFT		
SpellBinder	$495.00	$299.00
MICROPRO		
WordStar	$495.00	$375.00
WordStar & MailMerge	$645.00	$495.00
InfoStar	$495.00	$399.00
MICROSOFT		
MultiPlan	$195.00	$155.00
Basic Compiler	$395.00	$299.00
MICROSOLUTIONS		
Uniform Reads 43 machine formats	$ 69.95	$ 59.95
MICROSTUF		
Crosstalk	$195.00	$167.00
MYCROFT LABS		
Mite	$150.00	$ 99.00
OASIS SYSTEMS		
The Word Plus	$150.00	$105.00
PEARLSOFT		
Personal Pearl	$295.00	$225.00
PERFECT SOFTWARE		
Perfect Writer	$349.00	$$299.95
QUIC-N-EASY PROD.		
Q-Pro-4 with multikey file indexing	$595.00	$395.00
SAN FRANCISCO COMP		
Power!	$169.00	$125.00
DocuPower!	$169.00	$125.00
SOFTWARE TOOLWORKS		
MyChess	$ 34.95	$ 32.00
Word Wiggle	$ 29.95	$ 28.00
Eliza	$ 24.95	$ 23.00
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SuperCalc II	$295.00	$235.00
STAR SYSTEMS		
The Accounting Partner	$395.00	$285.00
T/MAKER COMPANY		
T/Maker III	$275.00	$199.00
T/Maker Intergrated with database manager	$495.00	$379.00

Supplies

Dysan DSDD diskettes	10/box	$ 37.00
ComRiter I and II	Prt Wheels	$ 24.95
QX-10 User's Guide, Hansen	$17.95	$15.95
Epson and Comrex ribbons		Call

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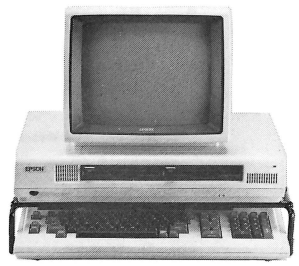
Do You Wish Writing Were Easier?

If you need to write, or want to write clearly, your Epson CP/M operating system and the software program *Punctuation and Style* can help you get there faster. It improves, clarifies, and enriches your writing by identifying sentences with misused, redundant, faulty, cliched, or erroneous phrases, and shows you how to improve them. It helps you rewrite and check your work by quickly marking and annotating your files for easy correction. In addition to computer-fast identification of awkward, muddy, pompous, and wordy sentence structure, it also finds missing or improper punctuation, unbalanced quotes, wrong abbreviations, faulty capitalizations, and much more. *Punctuation and Style* actually improves your writing by mercilessly pointing out grammatical errors. After a few weeks with Oasis System's *Punctuation and Style* your writing is bound to become more dynamic, expressive, and honest. In time, you'll stop worrying about grammar and work on projecting ideas instead. After all, that's what writing is about.

Punctuation and Style makes writing and rewriting much easier. Central's price for *Punctuation and Style* is $99. Experience the power of this valuable "Punctuation Checking and Writing Improvement Software" yourself. Order today to get this program fast.

Punctuation and Style works on files created with most popular CP/M word processors. It comes with an easy to use, clearly written manual and is packaged in an attractive binder. Join thousands who now write with more confidence, faster, and better.

Perfect Epson Stand



Simple, strong, sturdy, safe. These words describe an attractive stand that provides a perfect spot to place your Epson computer and monitor on. This stand is made from rounded, steel rods covered with a thick, shiny, soft, black polymer material that protects your Epson and table top from scratches. Unlike flat wood or acrylic panels used in other stands, the tough supporting rods of the Smart Stand (TM) do not obstruct air flow. In fact, since your Epson is lifted off the table top and fully supported by this stand, air flows freely all around your computer to help keep it cool. When you're finished computing, you can slide the keyboard completely under the stand to create a working area on your desk. Incidentally, lifting your QX-10 off the table top makes it much easier to insert and remove diskettes out of the disk drives. The Epson Smart Stand is a super value at $34.95. Try it for 15 days. If not completely satisfied, send it back for a full refund. Matching 80 or 132 column printer stands are only $26.95. Order today.

4 Star Money Manager

Keeping track of money is almost as hard as getting it. *Checks & Balances* is ideal for the home or business that is run out of a checkbook. If you can write a check, you can operate this easy-to-use program.

Checks & Balances allows entries to be divided between multiple categories; handles multiple checkbooks; includes flexible searching capabilities that locate records by date, number, or category; has commands that are all in plain English; and even comes with extensive on-screen help files that make it a pleasure to operate. It also allows easy checkbook reconciliation, records monthly budgeting for up to 64 user-defined categories, and has a super fast sort. Accepts checks written in any sequence.

Check & Balances is written in PL/I-80 and Z-80 assembler. Since it is already compiled, it runs very fast. The power, speed, and features of PL/I makes *Checks & Balances* a state of the art program that is much easier to use than similar programs with less features.

The list price of *Checks & Balances* is $54.95. Central's price is $52.00. This fine software will save you years of frustration in the management of your money. Order today.

New Low Prices!

3M Double sided Double Density soft-sectored diskettes are certified error-free, and work like a charm on the Epson QX-10 computer. Every 3M diskette is guaranteed to last over 3.5 million passes per track. This means if you rewrote or updated every track on a 3M diskette once per hour, you would have to continue this process for more than 200 years to equal the 3.5 million pass level. Heavy duty reinforced hub ring increases service life of these diskettes. We guarantee lifetime performance or money back.

Our quantity stocking of 3M diskettes and other guaranteed quality 3M products allows us to share with you new super low value pricing. Please check our low prices on these premium brand diskettes. There is no better diskette made for your Epson computer. Ten diskettes per box. For fast delivery, order your diskettes today.

3M DSDD diskettes for QX-10s: **$29.00**
3M Head Cleaning Kits for QX-10s: **$21.95**
3M DeskTop Anti-Static Mats: **$49.95**

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FIRM MONEY BACK GUARANTEE ORDER WITH CONFIDENCE Postage & Handling	$ 3.00
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☐ Navy blue ☐ Sand
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To order by mail use coupon, letter, or photo copy. Thank you.

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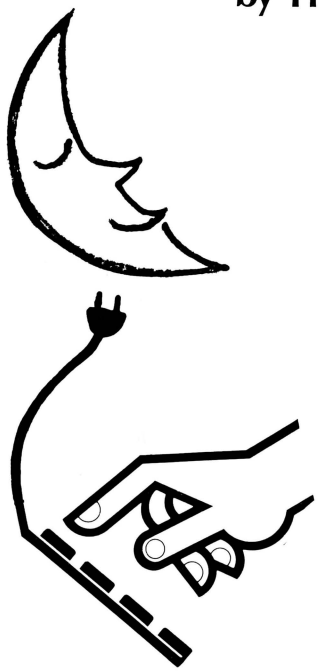
BRS/AfterDark

by Franc LaClair



Bibliographic Retrival Service (BRS) was created in 1976 primarily to provide online database access for libraries, businesses, and technical information centers. Currently it has over 80 different databases available. The connect fees and search techniques required to use it are prohibitive to the individual consumer. In an effort to create a service that would appeal to a wider audience, BRS/AfterDark was conceived. The connect rates are appreciably decreased, and the search techniques greatly simplified, making it a very user friendly and affordable system.

Currently more than 40 of the databases on BRS are accessible with BRS/AfterDark. They are divided into five categories:

1) Science and Education
2) Business and Finance
3) Reference
4) Educational and
5) Social Science and Humanities.

Available databases include Medline, Biosis Previews, Micro-Software Directory, Educational Resource Information Center (ERIC), Pyscinfo, Religion Index, Sociological Abstracts, ABI/Inform, Harvard Business Review, and Management Contents. Typical charges for using the databases range from $10-20/hour — no list was supplied with the documentation. There also is an additional system with a fee charge of $6 an hour. Communications charges are covered by these fees.

After you pay the one time sign up fee of $75, you receive your password and the documention for using the system. The provided documentation contains easy to follow instructions on how to access the service through Telenet, Tymnet, or Uninet, as well as instructions and examples of the search techniques required to use the system itself. It is, however, incomplete in several respects (which we shall mention later), with the promised completion date for the unfinished portions passed. The documentation lacks a summary of the available commands. For this reason, and to also provide an overview of the system, we have included the flowchart shown in figure 1. The easiest and probably best way to illustrate the features of the system would be to provide samples of searches. Space prohibits us from doing so here. Such a sample is available on CompuServe on one of the medical SIGs. To view it, type GO SFP-5 , then enter library 7 by typing XA7 , to print file OBGYN1.BRS , type P OBGYN1.BRS . This flowchart contains abbreviated forms of the instructions and prompts that you receive from the system and shows your available responses to these prompts in parenthesis (with multiple options separated by commas).

Each time you log on to the service you are asked to define your horizontal and vertical dimensions of your computer display. After the system outputs each of the screens that you have defined, you will be required to hit ENTER before the next screen appears. Entering a short screen length may prove to be a nuisance, but it will also allow you to bail out of an unwanted print sequence much faster.

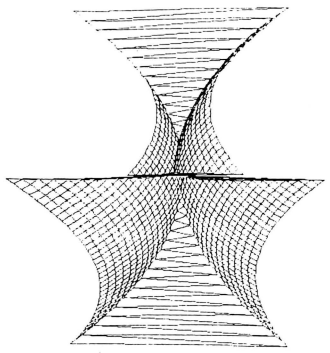
The BRS/AfterDark main menu follows. It contains seven options. You will find that three of these options — 3) Software Service 4) Electronic Mail Service and 5) Swap Shop — are yet to be implemented. The four implimented alternatives are:

1) Search Service
2) Newsletter Service
6) New System Services
7) Change your security password.

The Newsletter Service accessed in June of this year was dated November-December 1983. The 14 files therein, consisted of advertisements for various databases , the other as yet non-functional services from the main menu, and hints on searching techniques. The New System's feature section describes several commands that are available, but are not yet described in the documentation.

Now let's get down to what we signed up for — the Search Service. Option 1 from the Main menu elicits the five database categories previously mentioned. One of the incomplete aspects of

the documentation is that there is no listing of the databases in each category, nor is there a description of the databases themselves. The only way to secure a list of the contents of each category of databases is to go through each section while online. The only way to obtain a description of each database is to access each while online, or find a book like the*Omni Online Database Directory* ($10.95, from MacMillan Publishing Company, NY, NY) which provides an easier way to find the particulars on each database. To give an idea of the distribution of the databases, we have included the four letter descriptors on our diagram. No such list is in the documentation. Space prohibits presentation of a list of the complete names of all of the databases, or a list of their descriptions. Once you have entered a particular category, you may change to a different database, either in the same category or another one, by entering D and the appropriate four letter database descriptor at the ENTER COMMAND prompt. Let's say that we have decided on a database to use to search a particular topic in which we have previously identified the main concepts and determined synonyms and word variations. After entering the appropriate four letter database descriptor (the figure contains the descriptors for all of the database — another aspect in which the documentation is lacking), we are asked if we need a description of the database. Then we are asked if it is necessary to to have instructions printed at each point of our search. A yes answer to this question causes the following prompt to appear after each step in the the search, Type S to continue searching, P to print documents found, R to review searching questions, M to return to the Master Menu, D to return



to database menus, or O to sign off. A no answer eliminates these instructions, and results in only the ENTER COMMAND prompt.

There are three Boolean logic commands available to use when searching (and, or, and not), three positional or free-text operators (same, with, and adj), the truncation symbol ($), and field qualifiers. Again the documentation does not have a list of the respective field qualifiers for each database. We have a total of eight different commands to utilize, quite a bit different from services like DIALOG or BRS itself which each have over fifty commands. The use of these commands combined with nested logic (by using parenthesis) allows for the development of search queries of up to 234 characters.

At the S1 —› prompt we would enter our first query and obtain a response that would look something like this,

A1 300 DOCUMENTS FOUND.
ENTER COMMAND.

We now have the choice of any of the alternatives indicated on the figure. If We want to narrow the range down somewhat we enter S and a second search question, obtaining the following response,

A2 250 DOCUMENTS FOUND.
ENTER COMMAND.

We can then combine questions 1 and 2 by entering S to search again.

S3 —› 1 AND 2.
A3 43 DOCUMENTS FOUND.
ENTER COMMAND.

Still too many, so let's see if we can't find some more appropriate descriptors or search terms. We will (P)rint the first three documents in medium format (see figure 1). We enter P and are prompted for a question number. We respond with 3 and are prompted for a print format. Responding with M , we are then prompted for a document range. We respond with 1-3 and are presented with a display of the first three documents containing four fields; author(au), title(ti), source(so), and descriptors(de). Looking through the list of descriptors we find a term much more appropriate than any we had thought of. Using this term we execute another search and find 6 documents. Now we can print all of the documents in the long format, which includes the abstract. The necessary commands are entered and the documents start to appear on our display. As mentioned earlier, each time we hit the end of the screen which we have defined for the system, we are required to hit the ENTER key to continue. We are also afforded the opportunity to (Q)uit printing if so desired. If satisified, with the list of documents appearing, hit ENTER to complete the list. At its end we see, END OF DOCUMENTS IN LIST, TYPE ANOTHER DOCUMENT NUMBER OR ENTER COMMAND. Sign off by entering O.

One of the most powerful and time saving features of the BRS/AfterDark system is the ability of command stacking. Using a semicolon to separate commands you may, for instance, at the system Welcome prompt enter the following sequence to do a search for software for the QX-10 (note there is no enter command prompt for the first search question in each database).

80;60;1;2;SOFT;N;N;EPSON QX-10;P;1;L;ALL This feature is

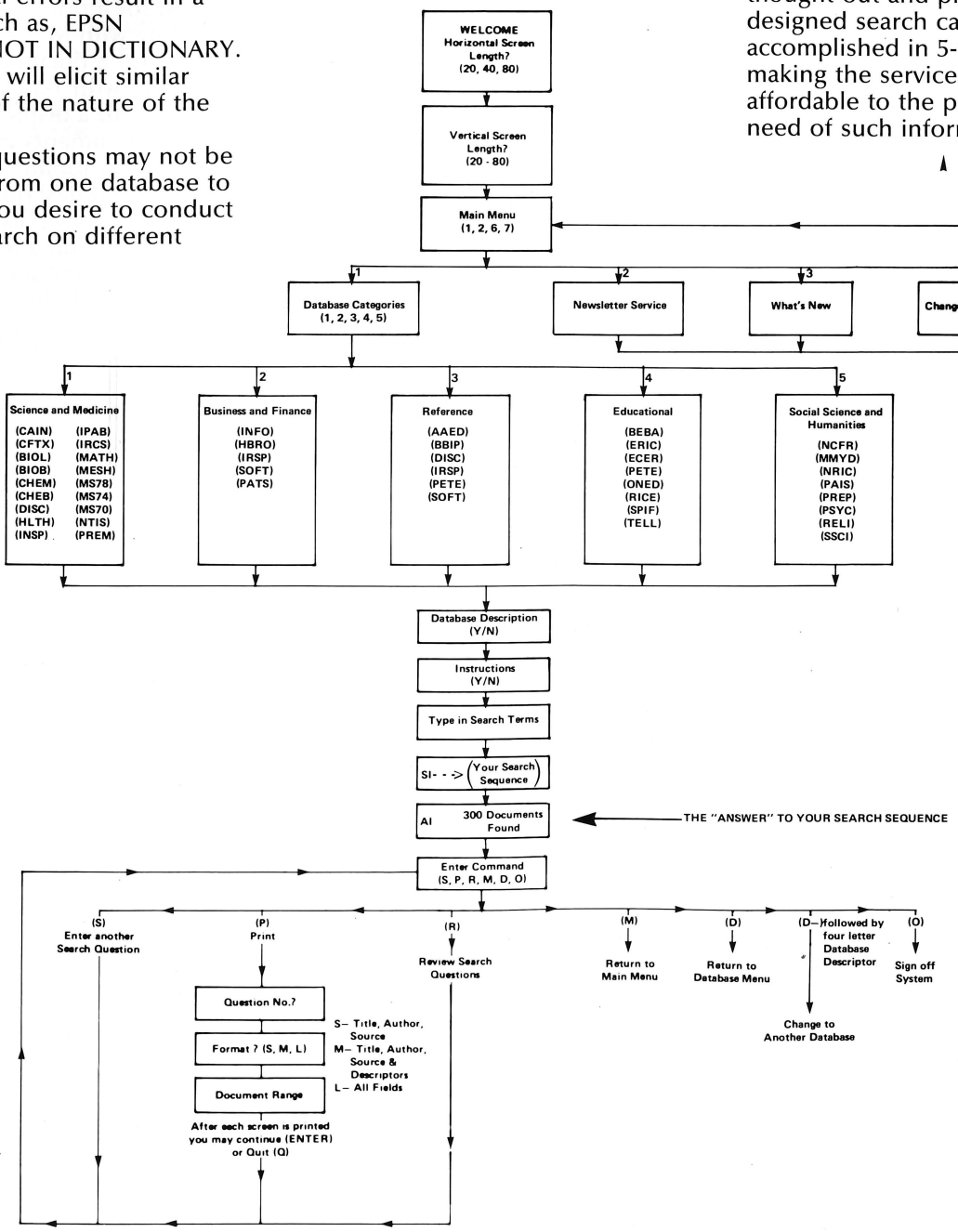
especially useful when printing out documents. Respond to the ENTER COMMAND prompt with P;4;S;ALL to print out all the documents to search question 4 in the long format.

You may correct typographical errors when entering search questions by either simultaneously depressing the CTRL and H keys to backspace or by entering a ? to erase the entire line. Unnoticed typographical errors result in a response such as, EPSN KEYWORD NOT IN DICTIONARY. Other errors will elicit similar indications of the nature of the error.

Search questions may not be transferred from one database to another. If you desire to conduct the same search on different databases, you will have to re-enter the entire sequence. Changing databases re-initiates the search sequence, erasing any questions already made.

The streamlined nature of BRS/AfterDark does not allow for some of the more advanced funtions available from services like DIALOG. You may not order printed copies of articles. Nor is there a Standard Dissemination of Information function. This streamlined nature does, however, make the system quite user friendly while still providing powerful searching functions. Boolean and nested logic features, positional operators, truncation, field qualifiers, and the feedback provided all contribute to the power and ease of use of the system. A well thought out and properly designed search can easily be accomplished in 5-10 minutes, making the service quite affordable to the professional in need of such information.

▲ ▲ ▲



EpsonNet Network
RBBS/RTPM

WESTERN STATES

Monterey, CA
408-646-8171
24 Hrs 7-Days

Denver, Colorado
303-249-1940
6PM - 8AM

Brookings, S.Dakota
605-679-6383
6PM - 8AM Mon - Sat
all day sunday

NORTH WESTERN

Port Orchard, WA
206-876-9053
7PM-7AM 7-Days

NORTH CENTRAL

Madison, Wisconsin
608-233-1111
10PM - 2AM Mon-Sun

Milwaukee, WI
414-291-5011
6PM-8AM Mon - Fri
24 Hrs. weekends

Portage, Indiana
219-762-5620
6PM - 6AM 7days

*Aurora, Indiana
812-926-3396
7AM-7PM Tues-Sun

*Wauwatosa, WI
414-476-2995
12PM - 4PM M-Sun
6PM - 12AM M-Sun

Indianapolis, IN
317-881-3849
M-W-F 9PM - 5AM
Sun. 7AM - 2PM

Leawood, Kansas
913-642-8479
8PM-8AM Mon-Fri
24 Hrs Weekends

Mound, Minnesota
612-472-2218
7-10PM Mon-Fri
9AM-10PM Sat-Sun

CENTRAL STATES

Detroit, Mich.
313-823-1425
24 Hrs. 7-Days

Perry, Mich
517-625-7822
3PM-12AM Mon-Fri
24 Hrs Sat-Sun

Lancaster, OH
614-687-6413
6PM-8AM Mon-Fri
Noon-Midnite S-S

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Canada (U.S. Funds)– ☐1 year $30 ☐2 years $55
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PROVINCE _____ COUNTRY _____
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Printer Model _____
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Greenville, OH
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6PM-9PM Mon-Fri
1PM Sat-9AM Mon

Mansfield, Ohio
419-522-5050
6PM-8AM Mon-Fri
1PM Sat-8AM Mon

SOUTH CENTRAL

Dallas, Texas
214-881-0313
24 Hrs. 7-days

*Houston, TX
713-546-3346
6PM-8AM M-F
24 Hrs Sat-Sun

EASTERN STATES

Sussex, NJ
210-875-2635
24 Hrs 7-Days

West Chester, PA
215-692-7502
9PM - 8AM M-Sat.

Harrisburg, PA
717-233-1270
24 Hrs 7-Days

Perry Hall, MD
301-256-8012
8PM-6AM Mon-Sat

Laurel, MD
301-490-6840
8-11PM Mon-Fri
10AM-4PM S - S

Irvington, NY
914-693-0293
24 Hrs 7-Days

Waitsfield, VT
802-496-4123
24 Hrs. 7-Days

SOUTH EASTERN

Nashville, TN
615-356-3750
24 Hrs 7-Days

Louisville, KY
502-239-2457
Call for Hrs.

Troutman, NC
704-528-6687
7AM-7PM 7-Days

Watkinsville, GA
404-769-6094
24 Hrs. 7-Days

CANADA

Ontario, Canada
416-282-1515
24 Hrs 7-Days

HX-20 Products

Business and Graphics HX-20 Software

American Micro Products has produced five new programs for the HX. **Business Graphics** allows pie, bar, line or point charts to be printed on the HX micoprinter, an Epson FX or MX printer with Graftrax (pie and line charts are not available for the FX or MX), or a Strobe Digital Graphics Plotter, Model 100 or 200.

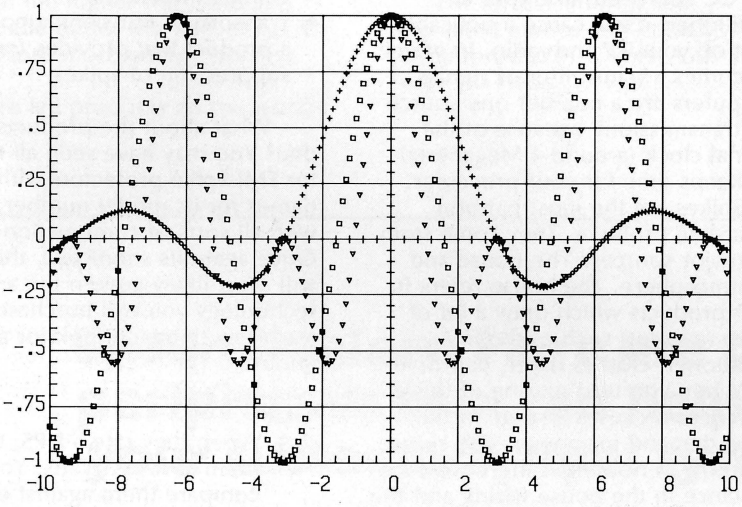
The **Graphics Development** series contains three main programs and ten subroutines designed for implementation by an advanced Basic programmer to produce high quality graphic charts on the Strobe 100 or 200 plotter.

The **Business Finance** library contains 8 programs allowing for the analysis of business finance problems. Programs include: Annuities/Annuities Due, Rent or Buy Decision, Cash Flow Analysis, Bond Analysis, Depreciation, Portfolio Analysis, Days Between Dates, and Machine Replacement Analysis. Output may be to the microprinter or an external printer.

Statistical Distribution Analysis library contains seven programs allowing for the grouping and analysis of statistical observations. Topics included are multiple linear regression, and normal, Poisson and Wiebull distributions. Output may be directed to the microprinter or an external printer.

The **General Statistics and Related Distributions** library contains 10 programs providing both parametric and non-parametric analysis of raw data. Topics included are the paired and unpaired t-test, one and two-way analysis of variance, means and moments, and the Chi-square distributon. Output may be to the microprinter or an external printer

All of these sophisticated libraries are well documented and are on microcassette. Suggested retail price is $75 per library. Contact: American Micro Products, Inc., 705 North Bowser, Richardson TX 75081.



Deskmaster 2/VID

Finally, a word processor that will work with the disk drives and the Oval 80 column display controller. Deskmaster 2/VID allows data to be transferred back and forth from disk to microcassette. Text may be displayed on the HX screen or an external monitor (using the Oval controller). The word-processing capabilities include: insertion/deletion of words/lines/multiple lines; block move; file splitting; right justification; underflow/overflow of text; number of lines remaining indicator;and printing all or part of the document. Suggested price is $100. Contact: Kuma Computers Ltd., 12 Horseshoe Park Pangbourne, Berkshire RG8 7JW, England.

HX-20 File Management

FMS 1.0 is a file management system for the microcassette drive which will store, retrieve and catalogue up to 25 files on each side of a microcassette. Contact: Computer Software Services, 2901 West Altadena Ave., P.O. Box 9702, Phoenix AZ 85029.

PX-8 NEW PRODUCTS

ZEN Editor/Assembler/Dissassembler

This is a complete system for generation and and analysis of Z80 assembly language programs. The package includes a symbolic assembler and dissassembler, and a text editor and machine code monitor. It replaces files left out of the PX-8 implementation of CP/M - ASM, ED, DDT, and LOAD. Suggested price is $70. Contact: KUMA Computers, 12 Horseshoe Park, Pangbourne, Berkshire RG8 7JW, England.

Traveling Software

Three ROM chip programs are being developed for the PX: **Traveling Appointment Manager** is a automatic calander allowing for the scheduling and prioritizing of appointments and other tasks; **Traveling Time Manager** is a complete professional time accounting and billing system; **Traveling Expense Manager** provides a means of tracking and budgeting both personal and business expenses. The programs will retail for $99. Contact: Traveling Software, Inc., 11050 Fifth Ave. N.E., Seattle WA 98125.

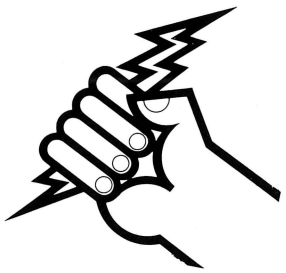
MISCELLANEOUS NEW PRODUCTS

Techni-Call Software

Epson America, Inc. has computerized all technical information for its products on a disk-storage information retrieval system. Called Techni-CALL, the new system runs on the QX-10 using a version of Ashton-Tate's dBase II. The six disk system contains information on all Epson and Comrex hardware and software in a menu-driven format. For more information contact your local Epson dealer.

Con't on page 30

POWER PROTECTION



by Ron Spatafora

Transorbs, surge, spikes, line conditioners... What is going on?? Have you noticed all the ads for power line devices? Ever wonder what they're talking about? Maybe you've read an article (or several) on the subject but still do not know what the big deal is, other than another gimmick for you to have to buy.

Let us talk about line power, that electrical stuff coming out of your wall outlet: 120VAC @ 60 Hz.(in the North American continent). 120 Volts Alternating Current (VAC) refers to the type of power potential presented at the outlet, in this case 120 volts (the equivalent of 10 car batteries) whose polarity is reversing 60 times per second, hence 60 Hertz(Hz). There are several problems associated with AC power versus DC (a car battery). Those that effect you, and your computer are: line fluctuation (voltage and cycles (Hz), EMI (electronic interference) and spikes.

Line fluctuations are one of the most common problems on the East Coast, because of the varying power loads imposed upon the electric company. When the demand exceeds the power company's capability, you get a "brown out", or low voltage condition. High demand may also cause the power to loose sync (which is 60 Hertz) and to vary widely , ie. 55 to 65 Hz. What will this do to your machine? Well, the power from the outlet enters your computer and passes thru a power transformer which in the QX-10's case involves more than just a transformer, it has a very extensive circuit. That circuit has the capability of handling a variation in voltage and cycles, up to a point! (By the way the QX is a unique computer to have such built-in protection). When the power goes beyond a system's capability, the power supply section of the computer starts to wander, then everything begins happening: memory "forgets", disk drives growl, hard drives crash, and at the extreme, the computer dies.

How about Electro Magnetic Interference (EMI)? Ever notice that data plate on your machine? The printer? How about your modem? See the FCC XXXXXX acceptance number? That, among other things, says Uncle Sam has inspected and tested that product and has deemed it to be of such manufacture that it will not emit harmful interference to the outside world beyond an acceptable established level. When a product is not FCC approved, like your air conditioner, it will cause a noticable affect on your TV and radio. In effect it becomes a transmitter of signals. Computers are a number one source for "transmission" because of the internal clock (around 4 Megahertz) that keeps time for your processor.

Spikes are the most harmful power-line problem. They come from two major sources: The house and the atmosphere. The house refers to other products which draw a lot of power (current) such as the air conditioner, clothes dryer, hair dryer, etc. When you turn on one of these appliances it causes a surge in the house demand for power. The surge would mean nothing if there were no resistance in the house wiring and the power company had an infinite supply of power to your house. But such is not the case, and therefore any demand on the supply causes the rest of your house to experience the spike (which is the current draw caused by the low turn-on resistance of the device). Another harmful spike you have experienced is the electrostatic build-up from walking around the house, especially in the winter. Lightening is an atmospheric source of energy spikes. A strike on a powerline miles away can send a thousand volt spike to your home lines.

What's available, and what do I really need?

That is often times subjective. In my opinion, the following holds true for a business computer setup: You should carefully evaluate the risks and consider purchasing the following:

1) UPS (uninterupted power supply) — a battery powered inverter that will provide 120 VAC for 5 minutes to over an hour, depending upon the size of the battery.
2) Line conditioner — a device that will allow for marginal voltage swings (90-130VAC).
3) EMI filter — a device that supresses any incoming or out going emmission.
4) Transorb or transient suppressor — a product that provides for suppression of spikes.

What about the products; which one? You may have seen all the ads for EMI/Spike protectors with fruit names for its model number, or UPS's with all sorts of combination features. Once again its subjective, the cost will most likely govern the amount of technology you will purchase. Here are a few things to look for and ask about:

1. UPS

- **A.** When they rate a UPS, they rate them at XXXX Watts. You want to compare them against each other based upon how long they will keep up the power at the full rated output. Some will tell you 10 minutes, but at "full output" it is really only 5 minutes.
- **B.** Is the output a good sine wave, or squarewave? If it is square then you cannot plug in printers or modems, because they are more sensitive to the power waveform.
- **C.** Does it have a low voltage kick-in feature, or is it just operational when there is a complete power loss.
- **D.** Does it have a circuit breaker? Alarm? Status indicators? is it approved?

2. EMI filters

- **A.** In general the easiest comparison of EMI filters is their

ability to suppress noise (A signal-top noise ratio). The higher the value, 65db , 70db the better the supression.

B. Look for specs. on the range it covers. A unit that specifically states that it covers a broad band spectrum of 500 hz to 5000 hz, or that states that it covers household appliance noise, is best.

3. Line Conditioners

A. The power rating is given in Watts.

B. A proper line conditioner should regulate the voltage variations in power transmissions.

4. Transient Suppressors

These are rated in units of energy per time period, in Joules per second. That is its ability to suppress and absorb exessive energy over a given period. In general the higher the Joule/Sec. rating, the better the unit, since it can absorb more energy (spikes):

There are products on the market that will include a combination of, or all of, the aforementioned items. Specifications for such combination units should still follow those of the individual units themselves.

Within the last month two of the EpsonNet Sysops have experienced power line problems. One experienced a lightning power surge that came through the modem phone line. It burned out his modem and QX-10 power supply board. There are RS232 and phone line suppressors for lightning and surge protection available. The second Sysop experienced the loss of power and then a return power surge which smoked his power board. Our advise is USERS BEWARE, just turning your system off in a storm is not enough. At least unplug it or get protection as mentioned in this article, and a little insurance policy can be well worth the cost.

For further information, interested parties may contact: Compuprod 2701-C West 15th Street, Suite 510 Plano, TX 75075.

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BASIC CORNER

The Basics of BASIC

by George Puckett

Welcome back! This is the third in a series of articles intended to teach you MBASIC. Hopefully you've had a chance to experiment some with the programs from the last article. If you have, Great! If not, you'll probably have to dig up last month's issue in order to really follow along with us this month.

Last month, we left off with a program that looked like this:Please note a correction; however, we neglected to include the quotation marks in lines 50 and 60. Please make this correction in order to properly run this program.

```
25 LET X = 32
30 LET Y = X * 2
40 LET RESULT = X / Y
50 PRINT X; "Divided by ";Y;" Equals "; RESULT
60 PRINT Y; "Divided by ";X;" Equals "; Y / X
70 END
```

I didn't print the results in last month's article because I wanted you to try out the program on your own and see what the results would be. For those of you who tried and want to compare your results to mine (or for those who didn't have quite so much success and just want to see the answer), here is what the print out should have looked like:

```
32 Divided by 64 Equals .5
64 Divided by 32 Equals 2
```

I hope that's similar to what you got on your own! This month I said I'd talk about the GOTO and IF-THEN statements. Let's start with GOTO.

The GOTO statement is BASIC's way of "manually" transferring control to a statement not in the normal top-to-bottom flow of the program. It is known as an "unconditional" branch or transfer. This means that the computer does not have to make any decisions about whether to branch or not. You told it to GOTO line 25 and by golly it's gonna branch to line 25! Let's modify our program a little as an illustration. Add, or replace the following lines to our program above:

```
70 X = X + 10
80 GOTO 30
90 END
```

Let's 'trace' through the program just as if we were the computer:

1. Store 32 in the memory location named X
2. Store X times 2 in the memory location named Y
3. Store X divided by Y in the memory location named RESULT
4. Print X,Y, and RESULT
5. Print Y,X, and Y divided by X
6. Add 10 to the current value of X
7. Go to line 30, which is step 2 in our little program flow. We then continue the program with the next line, which is now line 40. As you might notice, we'll never get to line 90 because we keep jumping back to line 30. This is known as an "infinite loop" and is generally considered bad programming because you'll have use control-C in order to stop the program once it's started.

This brings us to the next MBASIC tool, IF-THEN. The IF statement is the tool that allows the computer to make a decision and act on the result in some pre-determined manner. Let's make some more changes to our program and I think you'll see what IF-THEN is all about:

```
75 IF X > 200 THEN 90
```

What this does is to cause the computer to say "Is the value of X greater than 200?" If the answer is "YES" then the computer will do what's known as a "conditional" transfer to line 90, which will cause the program to end — thereby solving our problem of how to stop the thing without having to use control-C. If the answer is "NO" then the computer will continue on with the program at the next line, which in this case is line 80. Line 80 will unconditionally transfer control to line 30 which will multiply X by 2 and store it in Y, etc....

Pretty neat, huh! Besides 'greater than' (>), you can also use 'less than' (<), 'equal to' (=), and various combinations of these such as 'greater than or equal to' (>=), etc.... Our MBASIC interpreter will allow us to get a little fancier with our IF statements. You can have an IF-THEN-ELSE statement which gives us even more control over the program flow. Again, let's make some changes to our program and study the results:

```
75 IF X > 200 THEN 90 ELSE 30
80 PRINT "Uh Oh! We shouldn't have ever gotten here!"
```

What line 75 will do is check to see if X is greater than 200. If the answer is "YES" we still go to line 90 but now if the answer is "NO", instead of continuing with line 80 we should jump to line 30, thus continuing the program.

Well that should do it for this month. Remember to save your program using the SAVE command. Next month let's continue with the really powerful MBASIC statement FOR-NEXT. Until then, happy computing!

▲▲▲

VALBOTS

Part 3

As the star turns

In the first episode TP (The Prisoner) made his escape to TPM (The Programmers Medium) with the assistance of the guard robot "Valbot". He is searching for 2.0. Not knowing where to start, TP wanders around aimlessly looking for clues. He spots a blinking light in the distance, like a guiding star. Could this be a sign leading to 2.0? Running toward it his path is blocked by a Zapple tree. A small sprite dashes by and enters the tree through a hole at the base. It was mumbling something unintelligible about a clock as it disappeared. Following the sprite, TP falls into a TRAP. At the bottom of the trap are two containers. One has the letter "G" on it and the other is labeled "RETURN". Taking a bit from from both containers he finds himself on a hexidecimal path. Suddenly the path is filled with small almost fuzzy characters. They are moving all about going "byte, byte, byte..". Moving cautiously forward there is a loud ZAP, the 'fuzzies' are gone and in their place is a large smiling cat with a large "C" on his chest. The cat is speaking to him somehow through his thoughts, almost like some sort of mind amplification. He reassures TP, and tells him the way to Valtopia is to follow the yellow baud road. It is a long journey, and only those with enough stamina and courage will make it. TP sets out at once. He turns back to say thanks and finds that the cat has vanished, leaving only a warm boot. Taking the boot he resets his path and continues on his journey. Will he make it? Keep your systems online for the next episode.

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HX-20 Helpful Hints

HX-20 HELPFUL HINTS

One problem with the HX-20 microcassette tape drive is the non-linearity of the TAPCNT function. The difference between the start and end TAPCNT of a block is dependent on where on the tape it is stored. The following functions convert the TAPCNT to a linear measurement and back. They depend on the ratio of the tape thickness to the spooler diameter and hence will vary from different makes of tape.

To convert to linear measure:

```
DEFFNL(T%)=T%(1+9.3E*T%)
```

To convert linear measure to TAPCNT:

```
DEFNT(L%)=SQR(10752*L%+28905139)-
5376.35
```

To move the cursor to the left or right while in the insert mode in basic, try the following:

```
KEY3,CHR$(&35)+CHR$(&22)'cursor left
KEY4,CHR$(&34)+CHR$(&22)'cursor right
```

To auto start a program when the HX is switched on, try this:

LOAD and TITLE the program.

Go back to the menu and enter the MonitorL

Type in K n CNTL -@ where n= the number of the program on the menu.

Switch the HX off.

The computer will automatically run the program when the HX is powered on.

Remove the auto-start by hitting the BREAK key when you switch the computer on; enter the Monitor and type K CNTL -@, and then switch the computer on and off.

Return the HX-20 screen to the main menu after execution of a program by entering POKE 125,0:EXEC &HD23B at the end of the program.

The above hints are shared courtesy of Terrence Ronson's HX-20/PX-8/QX-10 International User's Group Newsletter which is published in England. ▲▲▲

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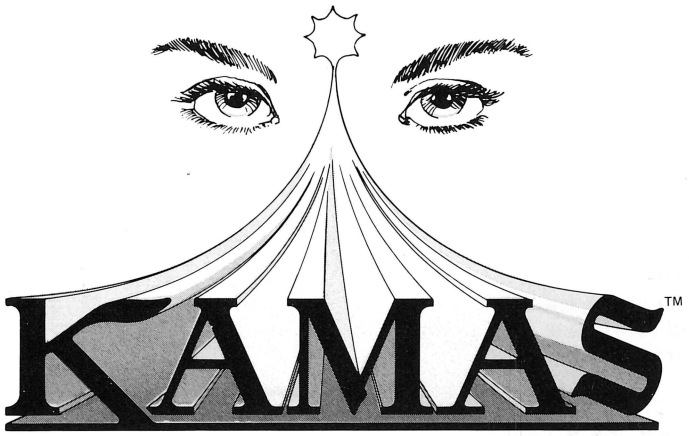

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We have many other "Portable Feats for the HX20", look for them in next month's issue or call us for more information.

New Products

Con't from page 25

Epson Elf

Epson has introduced a new product that is literally out of this world — a flat-screen liquid crystal display color television. Named the Elf, it measures 3.15"X6.3"X1.22" and has a 2" diagonal screen. The unit has a 4-way power supply, allowing for the use of either 5 "AA" batteries, a rechargeable battery pack, an AC adapter, or a car battery adapter. Both UHF and VHF channels are available. Its production was made possible by two technological advances: the development of a new type of LCD that responds faster to electrical impulses, and a new manufacturing process allowing the mounting of thin film transistors on a glass substrate thus eliminating the need for a cathode ray tube. The Elf, or ET-10, is scheduled for release this fall for a price of around $500.

Q's & A's

Con't from page 6

Q - After taking all the necessary steps to rebuild a VALDOCS index, a "spool cue full" error is still generated when attempting to print a document. How is this solved?

A - *Re-building the INDEX does not affect the print spool queue. The spooler is the software that allows you to continue editing a document after you have told the computer to print another. A queue is a group of items that have been lined up in sequential order. What you need to do is make sure that the printer is turned on before the computer is turned on or reset with Valdocs. Sometimes Valdocs does not recognize that a printer has been turned on after it has already been booted. The print spooler will accept the printing command because it can wait until the printer is ready. But if the spooler thinks that the printer is not ready and you add more documents to the queue, the system will tell you the print spooler is full. So make sure the printer is on when you boot up Valdocs.*

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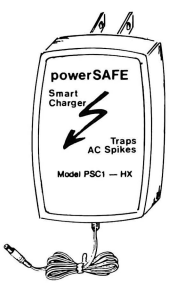

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News Notes

Con't from page 5

Joshua Jaffe are providing the Philadelphia RBBS/RTPM 300/1200 Baud, phone (215) 933-0334.

RSI product support now has a new member: Max Rochlin joins Dennis Dreyer to answer your questions at (213) 373-3154. They also have a product support BBS at (213) 373-3709. They will be posting tips on drive B4. The three RSI field support numbers are:
(504) 383-5861 Baton Rouge, LA.
(513) 236-7178 Dayton,OH.
(619) 560-7189 San Diego, CA.
The Epson America Epsource BBS is (800) 223-4325.

PX-8 and Modems. The PX-8 is proving to be a great portable terminal. To date we have successfully used it with the Hayes 300/1200 Smartmodem, ProModem 1200, and Qubie' 212A/1200E. The Epson 724 cable for the PX just plugs in to these modems, and off you go. At this point in time the Term program that comes with the PX will communicate, but you will be unable to upload and download programs from the BBS networks since Term does not support Christensen Protocol. A modem7 series program called PxModem will be available in the future.

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Q's & A's Con't from page 30

Q - Do you have a list of the common error messages that occur under Valdocs version 1.18 and what causes them?

A - *Here is a list of the most common error messages in Valdocs:*

Error FF Disk B Retry? (Y/N) — No diskette in drive.

Error 10 Disk X Retry? (Y/N) — Cannot read tract/sector Header record not available

Error 08 Disk V Retry? (Y/N) — Checksum read error. Can be caused by improper seating of diskette.

Bad File Name — Illegal characters in file name

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The Microcomputer User's Guide to Information Online, by Carol Hansen. This is an introductory book to online services. Examples of connections to several commercial data bases are presented, along with hints on how to use them. The extensive appendixes present information on the major vendors and networks, equipment manufacturers and selected bulletin boards. The 240 page book retails for $18.95.

Working Smart with Spreadsheets, by Timothy Berry.

This 190 page book does not present information on individual spreadsheet programs, but rather approaches the theory of how to make them do what they're supposed to as simply and as smoothly as possible. Suggested retail price is $18.95.

Mastering Wordstar, by Vincent Alfieri.

Written from the new user's point of view, this 432 page book illustrates the use of both CP/M and IBM PC Wordstar by a series of task-oriented exercises. The 32 chapters include: More Tricks of the Word Processing Trade, Housekeeping Files, and Mailmerge as a Database Program. The retail price is $19.95.

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